REV: A	**ENGINEERING DATA REQUIREMENTS** *(ATTACHMENT "A")*

NOTE: MILITARY SPECIFICATIONS I/STANDARDS WILL NOT BE FURNISHED IN THE BID SET.

1. THE FOLLOWING INSTRUCTIONS ARE FURNISHED FOR THE MANUFACTURE OF

CYLINDER ASSEMBLY - INNER, TIP PROTECTION GEAR, B-52 ACFT

2. PART NUMBER	3. NATIONAL STOCK NUMBER
5-71661-503	1620-00-771-8827

4. THE FOLLOWING SPECIFICATIONS/STANDARDS, ETC., WILL BE USED IN LIEU OF THE DATA INDICATED. THE SUPERSEDED DATA WILL NOT BE FURNISHED UNLESS SO INDICATED.

5. OO-ALC/LGHLEN SYSTEM ENGINEER RETAINS ALL RIGHTS TO REVIEW AND ACCEPT/REJECT MRB'S PRIOR TO SHIPMENT OF DISCREPANT ITEMS. ALL DEVIATIONS , MINOR OR MAJOR, FROM THE ENGINEERING DRAWING PACKAGE WILL BE SUBMITTED FOR MRB DISPOSITION.

6. PRIOR TO CONTRACT AWARD, THE CONTRACTOR WILL CERTIFY TO THE GOVERNMENT IN WRITING, FULL COMPLIANCE WITH MANUALS, SPECIFICATIONS, AND STANDARDS CALLED OUT AND REQUIRED FOR THE MANUFACTURE OF THIS CONTRACTED LANDING GEAR COMPONENT/ASSEMBLY. CONTRACTOR IS RESPONSIBLE TO COMPLETELY SEARCH THESE MANUALS, SPECIFICATIONS, AND STANDARDS AND FULLY UNDERSTAND THE REQUIREMENTS NECESSARY TO MANUFACTURE LANDING GEAR COMPONENTS. ANY QUESTIONS CAN BE FORWARDED TO THIS OFFICE OO-ALC/LGHLEN.

7. AFTER CONTRACT AWARD THE SUCCESSFUL BIDDER SHALL PROVIDE A COPY OF THE PROCESSING DOCUMENTATION (ROUTING DOCUMENTS AND PROCESS SPECIFICATIONS) TO LGHLEN FOR FINAL REVIEW BEFORE PRODUCTION BEGINS.

8. IDENTIFICATION AND MARKING PER MIL-STD-130, IMPRESSION STAMPING NOT PERMITTED, IN LIEU OF BAC 5307.

9. DRAWING 2-5000, BACD 2041, BAC 5602, BAC 5004, AND MIL-H-6088 ARE NOT REQUIRED TO MANUFACTURE THIS ITEM.

10. THREADS PER MIL-S-7742, SAFETY CRITICAL.

11. PERFORM MAGNETIC PARTICLE INSPECTION PER ASTM E 1444 IN LIEU OF MIL-I-6868. USE FULL WAVE DIRECT CURRENT (FWDC), WET CONTINUOUS METHOD, FLUORESCENT TYPE WITH THE FOLLOWING ACCEPTANCE/REJECTION CRITERIA: NO DEFECTS ALLOWED. THE INTENT OF NO DEFECTS ALLOWED IS THAT THE INSPECTION IS CONDUCTED AT THE REQUIRED SENSITIVITY LEVEL AND THERE WILL BE NO INDICATIONS ALLOWED. THE INSPECTOR PERFORMING THE INSPECTION WILL BE CERTIFIED TO LEVEL II WITH THE INSPECTION PROCEDURES DEVELOPED BY A LEVEL III AS SPECIFIED IN AIA/NAS 410.

12. HEAT TREAT PER SAE AMS-H-6875 IN LIEU OF BAC 5601.

13. ON PARTS HEAT TREATED 180 KSI AND ABOVE, ANY SURFACES GROUND/MACHINED AFTER HEAT TREAT WILL BE INSPECTED FOR BURNS PER MIL-STD-867. GRINDING WILL BE PER MIL-STD-866.

14. THE FOLLOWING FINISH CODES APPLY TO THE MANUFACTURE OF THIS ITEM:

A. F 1.10 APPLY NO FINISH EXCEPT THAT TEMPORARY COATINGS MAY BE APPLIED AS REQUIRED FOR PROTECTION DURING HANDLING, TRANSPORTATION AND STORAGE.

B. F 1.20 CADMIUM PLATE PER MIL-STD-870, CLASS 1, TYPE II. OPTIONAL F 1.205 NOT ALLOWED.

PREPARED BY	SYMBOL	DATE
CAROL HYER	LGMPM	21 Nov 03

REV: A	ENGINEERING DATA REQUIREMENTS CONTINUATION SHEET *(ATTACHMENT "A")*
PART NUMBER: 5-71661-503	NATIONAL STOCK NUMBER: 1620-00-771-8827

C. F 1.60 CADMIUM PLATE PER MIL-STD-870, CLASS 1, TYPE II. APPLY TWO PRIMER COATS EPOXY-POLYAMIDE PER MIL-PRF-23377 TO INTERIOR SURFACES EXCLUDING THE AXLE HOLE. OPTIONAL F 1.65 NOT ALLOWED.

D. F 1.61 CADMIUM PLATE PER MIL-STD-870, TYPE III, CLASS 2, EXTERIOR SURFACES, SINGLE PLATE THICKNESS .0003" - .0005" EXCEPT AS NOTED. APPLY TWO PRIMER COATS EPOXY-POLYAMIDE PER MIL-PRF-23377 TO INTERIOR SURFACES.

E. F 1.90 CHROMIUM PLATE TO DRAWING SPECIFIED THICKNESS TO MEET THE REQUIREMENTS OF QQ-C-320, CLASS 2.

F. F 12.46 ASSEMBLE WITH WET PRIMER PER TT-P-1757 ON FAYING SURFACES.

15. APPLY ONE COAT EPOXY-POLYAMIDE PRIMER PER MIL-PRF-23377, FOLLOWED WITH TWO TOP COATS POLYURETHANE PER MIL-PRF-85285, TYPE 1, COLOR #17925 (WHITE) PER FED-STD-595 TO THE EXTERIOR SURFACES OF P/N 5-36426-2 EXCLUDING THE AXLE HOLE.

16. USE SAE AMS 6484 FOR 4340 STEEL IN LIEU OF MIL-S-5000. (DWG 5-36426 & 3-80059)

17. USE SAE AMS 6382 FOR 4140 STEEL IN LIEU OF MIL-S-5626. (DWG 4-80076 & 3-80059)

18. USE SAE AMS 6280 FOR 8630 STEEL IN LIEU OF MIL-S-6050. (DWG 4-80076)

19. MACHINE USING BEST AIRCRAFT INDUSTRY SHOP PRACTICES IN LIEU OF BACD 2097.

20. DRILLING, REAMING AND HONING TO MEET DRAWING SPECIFICATIONS, USING BEST SHOP PROCEDURES AND THE FOLLOWING NOTES:

A. HIGH SPEED STEEL (HSS) DRILLS SHALL BE USED TO DRILL CORROSION RESISTANT STEELS.

B. HSS REAMS WILL BE USED FOR ROUGH REAMING AND FINAL REAMING OF STEELS HEAT TREATED BELOW 200 KSI. CARBIDE OR PREMIUM GRADE HI-SPEED STEEL TIPPED REAMERS WILL BE USED FOR ROUGH REAMING OF STEELS HEAT TREATED ABOVE 200 KSI.

C. HONING STONES SHALL BE OF 150 TO 500 ALUMINUM OXIDE GRIT WITH A MEDIUM-HARD BOND AND PREFERABLY A MULTI-HEAD STONE.

D. DRILLING SHALL NEVER BE USED AS A FINAL MACHINING OPERATION. A MINIMUM OF 0.015 INCH ON DIAMETER SHALL BE LEFT FOR FINAL REAMING. HOLES SHALL BE FINISHED BY REAMING OR BORING. WHEN JIGS, FIXTURES OR BUSHINGS ARE NOT USED FOR DRILLING HOLES LARGER THAN 1/4 INCH, THE HOLES WILL BE PILOTED WITH A CENTER DRILL. CHEMICAL, ELECTRICAL OR ELECTROCHEMICAL HOLE PRODUCING METHODS SHALL NOT BE USED AS A FINAL SURFACE PRODUCING METHOD WITHOUT PRIOR APPROVAL FROM OO-ALC/LILEC.

E. ROUGH REAMING, THE REAMER LENGTH SHALL BE AS SHORT AS CONSISTENT WITH REQUIRED PENETRATION. FINAL REAMING, THE DIAMETRAL CUT SHALL PRODUCE A HOLE THAT MEETS THE REQUIREMENTS OF THE ENGINEERING DRAWING.

PREPARED BY	SYMBOL	DATE
CAROL HYER	LGMPM	21 Nov 03

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F. HONING SHALL BE USED AS A FINAL OPERATION WHERE A SURFACE FINISH BETTER THAN 125 ROUGHNESS HEIGHT RATIO IS REQUIRED AND CANNOT BE PRODUCED BY OTHER MEANS.

G. CARBIDE DRILLS CAN BE OPERATED AT HIGHER SPEEDS THAN HSS DRILLS, BUT MUST BE USED WITH CAUTION. THEY MUST NOT BE USED IN A DULL OR CHIPPED CONDITION.

21. THE REQUIRED FORGING WILL BE PROCURED FROM THE QUALIFIED FORGING SOURCE USING THE ORIGINAL CERTIFIED FORGING PROCEDURES AND DIES/TOOLING.

A. PRIOR TO CONTRACT AWARD, THE DETAIL PART BIDDER SHALL PROVIDE CERTIFICATION, FROM THE FORGING SOURCE, TO THE GOVERNMENT THAT THE CERTIFIED DIES AND FORGING PROCEDURES ARE AVAILABLE AND THE FORGING SOURCE HAS AN AGREEMENT WITH THE DETAIL PARTS BIDDER TO PROVIDE FORGINGS FOR THEIR USE IN THE EVENT THEY ARE THE SUCCESSFUL BIDDER.

B. PRIOR TO PRODUCTION, FORGING LOT QUALIFICATION WILL BE ACCOMPLISHED AS SPECIFIED ON THE FORGING DRAWING AND SAE AMS-F-7190 FOR STEEL FORGINGS AND SAE AMS-A-22771 FOR ALUMINUM FORGINGS. THE DETAILED PART CONTRACTOR SHALL ASSURE THAT THIS HAS BEEN ACCOMPLISHED BY THE FORGING SOURCE AND SHALL SUBMIT CERTIFIED DOCUMENTATION OF ACCOMPLISHMENT TO THE GOVERNMENT.

22. FORGING SOURCE, DIE NUMBER AND LOCATION OF DIES:

A. FORGING DRAWING: BOEING AIRCRAFT CO 5-36426-2
DIE NUMBER: UNKNOWN

B. CONTROL OF FORGING PROCESSES: UNKNOWN

C. LOCATION OF FORGING DIES: UNKNOWN

23. INSTRUCTIONS FOR QUALIFICATION OF NEW FORGING SOURCE:

PRIOR TO CONTRACT AWARD, THE CONTRACTOR WILL ADVISE THE GOVERNMENT IN WRITING OF THEIR INTENT TO PROCURE NEW FORGING DIES AND THE PROPOSED FORGING SOURCE. THE CONTRACTOR WILL NOT PROCEED TO OBTAIN NEW DIES WITHOUT THE EXPRESS CONSENT OF THE GOVERNMENT PROCURING AGENCY. THE GOVERNMENT WILL HAVE UNLIMITED USE OF THE DIES DEVELOPED UNDER THIS CONTRACT. THE CONTRACTOR WILL INFORM THE FORGING HOUSE IN WRITING, AT THE SAME TIME THE ORDER FOR THE DIES IS PLACED, THAT THE GOVERNMENT HAS UNLIMITED USE RIGHTS OF THE DIES AND FORWARD A COPY OF THIS LETTER TO THE CONTRACTING OFFICER.

24. USE NSN: 5310-01-073-8613, P/N: AN365-428, CAGE: 88044, SELF LOCKING NUT IN LIEU OF BAC-N10BY-54W.

PREPARED BY	SYMBOL	DATE
CAROL HYER	LGMPM	21 Nov 03

REV: B	**ENGINEERING DATA REQUIREMENTS** *(ATTACHMENT "A")*

NOTE: MILITARY SPECIFICATIONS / STANDARDS WILL NOT BE FURNISHED IN THE BID SET.

1. THE FOLLOWING INSTRUCTIONS ARE FURNISHED FOR THE MANUFACTURE OF

CYLINDER, OUTER - STRUT ASSY, MLG ASSY, OF

2. PART NUMBER	3. NATIONAL STOCK NUMBER
4G11415-107C	1620 00 446 3776

4. THE FOLLOWING SPECIFICATIONS/STANDARDS, ETC., WILL BE USED IN LIEU OF THE DATA INDICATED. THE SUPERSEDED DATA WILL NOT BE FURNISHED UNLESS SO INDICATED.

a. Machine to meet drawing requirements per LAC 0701, in lieu of DS 30003.

b. Identify to meet drawing requirements and MIL-STD-130 with the following notes, in lieu of STP 63-001. Serial number shall be vibropeened, in the location indicated. If the drawing does not indicate a location, OO-ALC/LILE will provide S/N location instructions. Serialization of item shall be accomplished as follows: The serialization will begin with the CAGE of the contractor named on the contract, followed by a dash and the two (2) digit year of manufacture, followed a dash and a sequentially unique three (3) digit number. A contractor who receives numerous intermittent contracts will start serialization of item with the next number in sequence of the prior contract. If a contract produces more than 1000 items, the serial number should appear like this: "S/N 98747-02-001"

c. Magnetic particle inspection per ASTM E1444, in lieu of MIL-I-6868. Use fluorescent type, full wave direct current (FWDC), and wet continuous method. With the following acceptance/rejection criteria: NO DEFECTS ALLOWED. The intent of NO DEFECTS ALLOWED is that the inspection is conducted at the required sensitivity level and there shall be no indications allowed. The inspector performing the inspection shall be level II certified, with the inspection procedure developed by a level III, as specified in NAS-410.

d. Penetrant inspect per ASTM E1417, Type I, Method B or C, Level 3 or 4, in lieu of STP 53-201. With the following acceptance/rejection criteria: NO DEFECTS ALLOWED. The intent of NO DEFECTS ALLOWED is that the inspection is conducted at the required sensitivity level and there shall be no indications allowed. The inspector performing the inspection shall be level II certified, with the inspection procedure developed by a level III as specified in NAS-410.

e. Shot peen to meet drawing requirements per SAE AMS-S-13165, in lieu of STP 51-501.

f. Heat treat, normalize, stabilize, and anneal, per SAE AMS-H-6875; in lieu of STP 54-006.

g. Any surface ground/machined after heat treat, shall be inspected for abusive grinding/machining burns per MIL-STD- 867. Grinding shall be per MIL-STD-866.

5. The following changes have been made in materials and specifications required.

a. Use SAE AMS 4881, in lieu of AMS 4881. Alternate material use SAE AMS 4590, in lieu of AMS 4590. (Ref. drawings 4G13673, and 4G13675)

b. Use SAE AMS 4881, in lieu of AMS 4881. (Ref. drawings 4G13382, 4G13591, and 4G13672)

c. Use ASTM B271 Alloy C95410, in lieu of QQ-B-671. (Ref. drawing 4G13588)

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d. Use ASTM B196, in lieu of QQ-C-530, and SAE AMS 4881, in lieu of AMS 4881. (Ref. drawing 4G13385)

e. Use ASTM B150 alloy C63000, in lieu of QQ-C-465, alternate material use ASTM B271 Alloy C95400, in lieu of QQ-C-390. (Ref. drawing 4G13612)

f. Use ASTM B196 Alloy 17300 Temper TF00, in lieu of QQ-C-530. (Ref. drawing 4G13611)

g. Use SAE AMS 6257, in lieu of STM 05-501. (Ref. drawing 4G13400)

h. Assemble wet using TT-P-1757, in lieu of MIL-P-8585. Ref. drawing 4G11415)

6. Install bushings per the following for sub zero shrinkage requirements. (Ref. drawing 4G11415 note 33)

a. The bushing installation shall be accomplished in such a manner as to avoid damage to the finish on the I.D. of the housing into which the bushing is installed, or the finish on the O.D. of the bushing. Forced installation of sub-zero installation, such as the use of a press or hammer is not permitted, and is not acceptable. A small non-metallic hammer may be used to tap the bushing into alignment with the housing bore, or to seat the bushing.

b. Prior to bushing installation, the parts and housing bore shall be cleaned with a solvent to remove all contamination.

c. Liquid nitrogen shall be used for all sub-zero installations unless some other sub-zero coolant is specified, and approved by OO-ALC/LILE engineering. The soak time of the bushing in the liquid nitrogen shall be sufficient to allow the bushing to reach the same temperature as the coolant.

d. The bushing shall be installed into the housing immediatedly upon removal from the coolant with an absolute minimum lost time. Trial runs shall be accomplished as necessary to minimize installation time, which should be in the order of about seven (7) seconds maximum.

e. It may occasionally be necessary to heat the housing into which the bushing is to be installed, in addition to sub-zero cooling of the bushing. Detail parts in process, which do not have paint or sealant or other organic material applied prior to heating, the parts shall be heated by the use of radiant heat techniques, such as thermal blankets, infrared lamps etc; to the maximum temperature of 250 F. Temperature measuring devices shall be used to monitor heat and shall be located on areas of the part expected to reach maximum temperature. No scaling, oxidation, or corrosion shall be permitted.

f. The shrunken part shall be installed into the housing bore which has received a wet coat of TT-P-1757, zinc chromate primer which has been brush applied. The primer shall be applied to the housing bore prior to installation, so as to insure complete sealing of gaps between the housing bore and the installed bushing as evidenced by extruded primer around the entire periphery of both ends of the bushing.

REV: B	ENGINEERING DATA REQUIREMENTS CONTINUATION SHEET *(ATTACHMENT "A")*	
PART NUMBER 4G11415-107C		NATIONAL STOCK NUMBER 1620 00 446 3776

7. Drilling, reaming, and honing to meet drawing specifications, using best shop procedures and the following notes in lieu of STP 51-410.

   a. High speed steel (HSS) drills shall be used to drill corrosion resistant steels.

   b. HSS reamers will be used for rough reaming, and final reaming of steels heat treated below 200 KSI. Carbide or premium grade hi-speed tipped reamers will be used for rough reaming of steels heat treated above 200KSI.

   c. Honing stones shall be of 150 to 500 aluminum oxide grit with a medium-hard bond and preferably a multi-head stone. Heads with steel shoes or wipers shall not be used.

   d. Drilling shall never be used as a final machining operation. A minimum of 0.015 inch on diameter shall be left for final reaming. Holes shall be finished by reaming or boring. When jigs, fixtures, or bushings are not used for drilling holes larger than 1/4 inch, the holes will be piloted with a center drill. Chemical, electrical, or electrochemical hole producing methods shall not be used as a final surface producing method without prior approval from OO-ALC/LILE.

   e. Rough reaming, the reamer length shall be as short as consistent with required penetration. Final reaming, the diameter cut shall produce a hole that meets the requirements of the engineering drawing.

   f. Honing shall be used as a final operation where a surface finish better than 125 roughness height ratio is required, and cannot be produced by other means

   g. Carbide drills can be operated at higher speeds that HSS drills, but must be used with caution. Thay must not be used in dull or chipped condition.

8. Finish per the following in lieu of DS 30000, and finish code C, CC, D, 17, 54, and 74-74.

   a. Cadmium plate per MIL-STD-870, or QQ-P-416 to meet drawing requirements Class 2, Type II. (code C)

   b. Cadmium-titanium plate per MIL-STD-1500, or SAE AMS 2419, to meet drawing requirements Class 2, Type II. (code CC)

   c. Chromium plate per MIL-STD-1501, Type II, Class 1. (code D)

   d. Primer wash is not required for the manufacture of this item. (code 17)

   e. One coat of epoxy primer per MIL-PRF-85582, Type I, Class C 2. (code 54). Alternate, One coat of epoxy primer per MIL-PRF-23377, Type I.

   f. Two coats of top coat per MIL-PRF-85285, Type I. (color white, No. 17925 per FED-STD-595). (code 74-74)

PREPARED BY	SYMBOL	DATE
ORIN HATCH	LGMPM	9 Dec 03

REV: B	ENGINEERING DATA REQUIREMENTS CONTINUATION SHEET *(ATTACHMENT "A")*
PART NUMBER 4G11415-107C	NATIONAL STOCK NUMBER 1620 00 446 3776

9. The required forgings will be procured from the qualified forging source using the original certified forging procedures and dies.

   a. Prior to contract award, the detail part bidder will provide certification, from the forging source to the government, that the certified dies and forging procedures are available and that the forging source has an agreement with the detail part bidder to provide forgings for his use in the event that he is the successful bidder.

   b. Prior to production, forging lot qualification will be accomplished as specified on the forging drawing, and SAE AMS-F-7190. The contractor will assure that this is or has been accomplished by the forging source and will submit certified documentation of accomplishment to the government.

10. FORGING SOURCE, CONTROL AND LOCATION OF DIES:

   a. Forging drawing: 4G13400-991A Lockheed GA. CAGE 98897

   b. Control of froging: B.F Goodrich CAGE 13002

   c. Location of froging dies: Wyman Gordon
   105 Madison St.
   Worcester, MA 01613

   d. Die number: 15330

11. Material Review Board disposition:

   a. OO-ALC/LILE system engineering retains all rights to review and accept MRB dispositions prior to shipment of discrepant item. All deviations, minor and major, from the engineering drawing package will be submitted for MRB disposition.

   b. Prior to contract award, the contractor will certify to the government in writing full compliance with manuals, specifications, and standards called out and required for the manufacture of this contracted landing gear component/ assembly. The contractor is responsible to completely search all required documents and fully understand the necessary requirements to manufacture the stated item. Any questions can be forwarded to this office OO-ALC/LILE

12. After contract award the successful bidder shall provide a copy of the processing documentation (routing documents and process specifications) to LILE for final review before production begins.

13. The following specifications are not required for manufatctre of this item.

   a. Fatigue test X998, Static test X999, and DS 5025.

   b. Flag notes 60 and 61 on drawing 4G11415 are not required.

PREPARED BY	SYMBOL	DATE
ORIN HATCH	LGMPM	9 Dec 03

REV: C	ENGINEERING DATA REQUIREMENTS (ATTACHMENT "A")

NOTE: MILITARY SPECIFICATIONS //STANDARDS WILL NOT BE FURNISHED IN THE BID SET.

1. THE FOLLOWING INSTRUCTIONS ARE FURNISHED FOR THE MANUFACTURE OF

PISTON, AXLE - STRUT ASSY. NLG ASSY. OF

2. PART NUMBER	3. NATIONAL STOCK NUMBER
4G51427-101	1620 00 409 4739

4. THE FOLLOWING SPECIFICATIONS/STANDARDS, ETC., WILL BE USED IN LIEU OF THE DATA INDICATED. THE SUPERSEDED DATA WILL NOT BE FURNISHED UNLESS SO INDICATED.

a. Machine per LAC 0701, in lieu of DS 30003.

b. Identify to meet drawing requirements and MIL-STD-130 with the following notes, in lieu of STP 63-001. Serial number shall be vibropeened, or steel stamped, in 0.09" letters 0.004" - 0.007" deep in the location indicated. If the drawing does not indicate a location, OO-ALC/LILE will provide S/N location instructions. Serialization of item shall be accomplished as follows: The serialization will begin with the CAGE of the contractor named on the contract, followed by a dash and the two (2) digit year of manufacture, followed by a dash and a sequentially unique three (3) digit number. A contractor who receives numerous intermittent contracts will start serialization of item with the next number in sequence of the prior contract. If a contract produces more than 1000 items, the serial number should appear like this: "S/N 98747-95-001"

c. Heat treat per SAE AMS-H-6875, in lieu of STP 54-006, and STP 54-013. Any surface ground/machined after heat treat shall be inspected for burns per MIL-STD-867, grinding shall be per MIL-STD-866.

d. Magnetic particle inspection per ASTM E1444, in lieu of MIL-I-6868. Use fluorescent type, full wave direct current (FWDC), and wet ontinuous method. With the following acceptance/rejection criteria: NO DEFECTS ALLOWED. The intent of NO DEFECTS ALLOWED is that the inspection is conducted at the required sensitivity level and there shall be no indications allowed. The inspector performing the inspection shall be level II certified, with the inspection procedure developed by a level III, as specified in NAS-410.

e. Shot peen to meet drawing requirements per SAE AMS -S-13165, in lieu of STP 51-501.

f. Machine per SAE AS 33515-4, or SAE AS 5202-4, in lieu of AND 10050-4, and use SAE AS 5202-5 in lieu of AND 10071. (Ref. drawing 4G51427)

5. The following are material changes.

a. Use SAE AMS 6257, or SAE AMS 6419, 300M in lieu of STM 05-501. (Ref. drawing 4G51404)

b. Use SAE AMS 5643 17-4PH, in lieu of AMS 5643. (Ref. drawing 4G53912)

c. Use TT-P-1757, in lieu of MIL-P-8585.

PREPARED BY	SYMBOL	DATE
ORIN HATCH	LGMPM	7 Dec 03

REV: C	ENGINEERING DATA REQUIREMENTS CONTINUATION SHEET *(ATTACHMENT "A")*	
PART NUMBER 4G51427-101A		NATIONAL STOCK NUMBER 1620 00 409 4739

6. Drilling, reaming, and honing to meet drawing specifications, using best shop procedures and the following notes in lieu of STP 51-410.

   a. High speed steel (HSS) drills shall be used to drill corrosion resistant steels.

   b. HSS reamers will be used for rough reaming, and final reaming of steels heat treated below 200 KSI. Carbide or premium grade hi-speed tipped reamers will be used for rough reaming of steels heat treated above 200 KSI.

   c. Honing stones shall be of 150 to 500 alumium oxide grit with a medium-hard bond and preferably a multi-head stone. Heads with steel shoes or wipers shall not be used.

   d. Drilling shall never be used as a final machining operation. A minimum of 0.015 inch on diameter shall be left for final reaming. Holes shall be finished by reaming or boring. When jigs, fixtures, or bushings are not used for drilling holes larger than 1/4 inch, the holes will be piloted with a center drill. Chemical, electrical, or electrochemical hole producing methods shall not be used as a final surface producing method without prior approval from OO-ALC/LILE.

   e. Rough reaming, the reamer length shall be as short as consistent with required penetration. Final reaming, the diameter cut shall produce a hole that meets the requirements of the engineering drawing.

   f. Honing shall be used as a final operation where a surface finish better than 125 roughness height ratio is required, and cannot be produced by other means.

   g. Carbide drills can be operated at higher speeds that HSS drills, but must be used with caution. Thay must not be used in dull or chipped condition.

7. Finish per the following in lieu of DS 30000, and finish codes C, CC, D, 46, 17, 54, and 74-74.

   a. Cadmium plate per MIL-STD-870, Class 3, Type II. (code C) (Ref. drawing 4G51427)

   b. Cadmium plate per MIL-STD-870, Class 2, Type II. (code CC) (Ref. drawing 4G51427)

   c. Chromium plate per MIL-C-1501, Type II, or III, Class 1. (code D) (Ref. drawing 4G51427 Note 9)

   d. Use SAE AMS 27725, Polyurethane coating. (code 46) (Ref. drawing 4G51427 Note 31)

   e. Primer wash is not required. (code 17)

   f. One coat of epoxy primer per MIL-PRF-85582, Type I, Class 2. (code 54). Alternate, One coat of epoxy primer per MIL-PRF-23377, Type I.

   g. Two coats of top coat per MIL-PRF-85285, Type I. (color white, No. 17925 per FED-STD-595). (code 74-74)

PREPARED BY	SYMBOL	DATE
ORIN HATCH	LGMPM	7 Dec 03

REV: C	ENGINEERING DATA REQUIREMENTS CONTINUATION SHEET *(ATTACHMENT "A")*	
PART NUMBER 4G51427-101A		NATIONAL STOCK NUMBER 1620 00 409 4739

8. Lockheed identification number 4G94451, represents a specification comtrol type drawing for product qualification control. The following qualified product identification is provided. The contractor must certify that the qualified product was procured and used in the assembly. The product purchase order will satisfy this requirement.

   a. SCD 4G94451-101A, Bearing - Kneel Roller, the qualified product is P/N 90723, CAGE 09455, RBC Transport Dynamics Corp., 3131 Segerstrom Ave., Santa Ana, CA. 92074-5872

9. Install bushings per the following for sub zero shrinkag requirements.

   a. The bushing installation shall be accomplished in such a manner as to avoid damage to the finish on the I.D. of the housing into which the bushing is installed, or the finish on the O.D. of the bushing. Forced installation of sub-zero installation, such as the use of a press or hammer is not permitted, and is not acceptable. A small non-metallec hammer may be used to tap the bushing into alignment with the housing bore, or to seat the bushing.

   b. Prior to bushing installation, the parts and housing bore shall be cleaned with a solvent to remove all contamination.

   c. Liquid nitrogen shall be used for all sub-zero installations unless some other sub-zero coolant is specified, and approved by OO-ALC/LILE engineering. The soak time of the bushing in the liquid nitrogen shall be sufficient to allow the bushing to reach the same temperature as the coolant.

   d. The bushing shall be installed into the housing immediatedly upon removal form the coolant with an absolute minimum lost time. Trial runs shall be accomplished as necessary to minimize installation time, which should be in the order of about seven (7) seconds maximum.

   e. It may occasionally be necessary to heat the housing into which the bushing is to be installed, in addition to sub-zero cooling of the bushing. Detail parts in process, which do not have paint or sealant or other organic material applied prior to heating, the parts shall be heated by the use of radiant heat techniques, such as thermal blankets, infrared lamps etc; to the maximum temperature of 250 F. Temperature measuring devices shall be used to monitor heat and shall be located on areas of the part expected to reach maximum temperature. No scaling, oxidation, or corrosion shall be permitted.

   f. The shrunken part shall be installed into the housing bore which has received a wet coat of TT-P-1757, zinc chromate primer which has been brush applied. The primer shall be applied to the housing bore prior to installation, so as to insure complete sealing of gaps between the housing bore and the installed bushing as evidenced by extruded primer around the entire periphery of both ends of the bushing

PREPARED BY	SYMBOL	DATE
ORIN HATCH	LGMPM	7 Dec 03

REV: C	ENGINEERING DATA REQUIREMENTS CONTINUATION SHEET *(ATTACHMENT "A")*
PART NUMBER 4G51427-101A	NATIONAL STOCK NUMBER 1620 00 409 4739

10. The required forgings will be procured from the qualified forging source using the original certified forging procedures and dies.

    a. Prior to contract award, the detail part bidder will provide certification, from the forging source to the government, that the certified dies and forging procedures are available and that the forging source has an agreement with the detail part bidder to provide forgings for his use in the event that he is the successful bidder.

    b. Prior to production, forging lot qualification will be accomplished as specified on the forging drawing, and MIL-F-7190. The contractor will assure that this is or has been accomplished by the forging source and will submit certified documentation of accomplishment to the government.

11. FORGING SOURCE, CONTROL AND LOCATION OF DIES:

    a. Forging drawing: 4G51404-991A Lockheed GA. CAGE 98897

    b. Control of forging: B.F.Goodrich. CAGE 13002

    c. Location of forging dies: Wyman Gordon Co. CAGE 79448

12. Material Review Board disposition:

    a. OO-ALC/LILE system engineering retains all rights to review and accept MRB dispositions prior to shipment of discrepant item. All deviations, minor and major, from the engineering drawing package will be submitted for MRB disposition.

    b. Prior to contract award, the contractor will certify to the government in writing full compliance with manuals, specifications, and standards called out and required for the manufacture of this contracted landing gear component/ assembly. The contractor is responsible to completely search all required documents and fully understand the necessary requirements to manufacture the stated item. Any questions can be forwarded to this offece OO-ALC/LILE

13. After contract award the successfull bidder shall provide a copy of the processing documentation (routing documents and process specifications) to LILE for final review before production begins.

14. The following specifications are not required for the manufacture of this item.

    a. DS 5025, Fatgue test X995, and Static test X999.

    b. Disregard flag notes 52, 54, 57, 58, and 61. (Ref. drawing 4G51427)

PREPARED BY	SYMBOL	DATE
ORIN HATCH	LGMPM	7 Dec 03

REVISION: *02*

ENGINEERING DATA LIST

* HISTORY *

DATE :	DATA TECH :	ORGN SYMBOL :	PR NR :	APPLICATION:	PAGE
10DEC03	SOH	LGMPM		C-5A/B	1 OF 1

CAGE:	MANUFACTURER NAME:	REFERENCE NR:	NOUN :	NSN :
98897	LOCKHEED MARTIN	4G51427-101A	PISTON,LANDING GEAR	1620004094739LE

CAGE	DRAWING NUMBER	REV	NR SHEETS	NR CARDS	FURN CODE	DIST CODE	NOUN	REQUIREMENTS
98897	4G51427 /	V	0002	0000	S		PISTON,AXLE STRUT ASSY.	
98747	87C330 /		0001	0000	S		ENGINEERING CHANGE ORDER	
98747	87C544 /		0001	0000	S		ENGINEERING CHANGE ORDER	
98897	4G51404 /	L	0001	0000	S		PISTON, AXLE	
98897	4G53912 /	D	0001	0000	S		BUSHING	
98747	77C328 /		0001	0000	S		ENGINEERING CHANGE ORDER	
98897	DS 30001 /		0000	0000	S		DESIGN STANDARD	
98897	LAC 0701 /		0000	0000	S		PROCESS SPECIFICATION	
98747	OO-ALC/PMDDAB /	C	0000	0000	X		ENGR.DATA REQUIREMENTS ATACH "A"	

STANDARD ENGINEERING TEXT

ENGINEERING DATA LIST REMARKS

FURNISHED METHOD CODE LEGEND:

C - CLASSIFIED DOCUMENT.
S - FURNISHED WITH SOLICITATION.
M - STABLE BASE DRAWING REQUIRED; FURNISHED WITH CONTRACT AWARD.
X - DATA SUPPLIED (NOT IN EDCARS).
R - FURNISHED BY PCD UPON REQUEST.
P - PARTIAL DOCUMENT FURNISHED.
V - VENDOR DRAWING; (NOT PROVIDED).
G - GOV'T DOCUMENT.
O - OTHERS, CONTRACTOR MUST ACQUIRE.
A - DATA NOT AVAILABLE.

REV: B	ENGINEERING DATA REQUIREMENTS (ATTACHMENT "A")

NOTE: MILITARY SPECIFICATIONS I/STANDARDS WILL NOT BE FURNISHED IN THE BID SET.

1. THE FOLLOWING INSTRUCTIONS ARE FURNISHED FOR THE MANUFACTURE OF

PISTON ASSEMBLY-MAIN LANDING GEAR F-15

2. PART NUMBER	3. NATIONAL STOCK NUMBER
68A412704-1003	1620-01-445-0092

4. THE FOLLOWING SPECIFICATIONS/STANDARDS, ETC., WILL BE USED IN LIEU OF THE DATA INDICATED. THE SUPERSEDED DATA WILL NOT BE FURNISHED UNLESS SO INDICATED.

A. Mark and Identify per MIL-STD-130 as an alternate to PS16001. (REF. NOTE #19)

B. For large assemblies and components utilize the following statement in lieu of PS 16001) Serial number shall be vibropeened, in 0.09" letters 0.004"-0.007" deep in the location indicated. If the drawing does not indicate a location, OO-ALC/LGHLEN will provide S/N location instructions. Serialization of item shall be accomplished as follows: The serialization will begin with the CAGE of the contractor named on the contract, followed by a dash and the 2 digit year of manufacture, followed by a dash and a sequentially unique 3 digit number. A contractor who receives numerous intermittent contracts will start serialization of item with the next number in sequence of the prior contract. If a contract produces more than 999 items, the serial number should begin using 4 digit serial numbers. The serial number should appear like this: S/N 98747-03-001."

C. Inspection requirements are as follows:

1. Perform fluorescent penetrant inspection per ASTM E1417, Type I, Method B or C, Level 3 or 4) in lieu of PS 21202 with the following acceptance/rejection criteria: NO DEFECTS ALLOWED. The intent of "NO DEFECTS ALLOWED" is that the inspection is conducted at the required sensitivity level and there will be no indications allowed. The inspector performing the inspection shall be certified to Level II with the inspection procedures developed by a Level III as specified in NAS 410.

2. Perform Magnetic ParticleInspection per ASTM E1444 in lieu of PS 21201. Use full wave direct current (FWDC), wet continuous method, fluorescent type with the following acceptance/rejection criteria: NO DEFECTS ALLOWED. The intent of NO DEFECTS ALLOWED is that the inspection is conducted at the required sensitivity level and there shall be no indications allowed. The inspector performing the inspection shall be certified to Level II with the inspection procedure developed by a Level III as specified in NAS-410.

D. Shot Peen per SAE AMS -S-13165 as an alternate to PS 14023. (Insure all requirements of Drawing 68A412704, Note #27 are complied with).

E. Heat Treat Beryl Copper per SAE AMS-H-7199 as an alternate to PS 15935. (DRAWING 68A410636, Note #13)

F. Heat Treat Steel per SAE AMS-H-6875 as an alternate to PS 15296 and PS 15351.

G. For parts Heat-Treated to 180 KSI and above, any surface that is ground/machined after heat treat, shall be inspected for abusive grinding/machining burns per MIL-STD-867.

H. Grind per MIL-STD-866 as an alternate to PS 20710.

I. Temper Etch per MIL-STD-867 as an alternate to PS 21205.

J. Bearing General Specification Qualifications MIL-B-81934 has been cancelled, use SAE AS 81934.

PREPARED BY	SYMBOL	DATE
DAVID H. ARGYLE	LGMPM	25 Nov 03

REV: B	ENGINEERING DATA REQUIREMENTS CONTINUATION SHEET *(ATTACHMENT "A")*
PART NUMBER 68A412704-1003	NATIONAL STOCK NUMBER 1620-01-445-0092

K. Install Bushings per the following, as an alternate to PS 17034:

1. The bushing installations shall be accomplished in such a manner as to avoid damage to the finish on the I.D. of the housing into which the bushing is installed, or the finish of the O.D. of the bushing. Forced installation of sub-zero installations, such as the use of a press or hammer is not permitted, and is not acceptable. A small non-metallic hammer may be used to tap thc bushing into alignment with the housing bore, or to seat the bushing.

2. Prior to bushing installation, the parts and housing bore shall be cleaned with a cleaning solvent to remove all contamination.

3. Liquid nitrogen shall be used for all sub-zero installations unless some other sub-zero coolant is specified, and approved by OO-ALC/LGHLEN Engineering. The soak time of the bushing in the liquid nitrogen shall be sufficient to allow the bushing to reach the same temperature as the coolant.

4. The bushing shall be installed into the housing immediately upon removal from the coolant with an absolute minimum of lost time. Trial runs shall be accomplished as necessary to minimize installation time which should be in the order of about seven (7) seconds maximum.

5. It may occasionally be necessary to heat the housing into which the bushing is to be installed, in addition to sub-zero cooling of the bushing. Detail parts in process, which do not have paint or sealant or other organic material applied prior to heating, shall be heated by the use of radiant heat techniques, such as thermal blankets, infrared lamps etc.; to the maximum temperature of 250 F.Temperature measuring devices shall be used to monitor heat and shall be located on areas of the part expected to reach maximum temperature. No scaling oxidation, or corrosion shall be permitted.

6. Bushings without flanges shall be installed into housing bore which has received a light coat of sealant per MIL-PRF-81733. Install shrunken bushing and wipe off any excess sealant that may have extruded aroumd the periphery of both ends of the bushings.

7. Bushings with flanges shall be installed in a similar manner as paragraph F. Except sealant shall also be applied to face of lug under flange. Sealant shall be applied in such a manner as to ensure complete coverage of inside face of bushing flange when bushing is installed. Wipe off any excess sealant around periphery of bushing flange forming a bead. Wipe any excess sealant from the other end of the bushing.

8. For bushings with external grease grooves the inside of the lug will be coated with MIL-C-16173 prior to bushing installation, and face of lug will be coated with MIL-PRF-81733 per paragraph G.

PREPARED BY	SYMBOL	DATE
DAVID H. ARGYLE	LGMPM	25 Nov 03

REV: B	ENGINEERING DATA REQUIREMENTS CONTINUATION SHEET *(ATTACHMENT "A")*

PART NUMBER	NATIONAL STOCK NUMBER
68A412704-1003	1620-01-445-0092

L. Use Material SAE AMS 6419 in lieu of AMS 6419. (DRAWING 68A412704)

M. Use Material SAE AMS-225/9 in lieu of QQ-A-225/9. (DRAWING 68B410067)

N. Use Material ASTM B196, ASTM B197, and B194 in lieu of QQ-C-530, Condition "H". (DRAWING 68A410636)

O. Threads per MIL-S-8879. (SAFETY CRITICAL)

P. Cadmium Plate per MIL-STD-870 (Type II, Class 2) as an alternate to PS 13101 & PS 13144.

Q. Chrome Plate per MIL-STD-1501(Type II, Class 3) as an alternate to PS 13102.

R. Anodize per MIL-A-8625 (TYPE II, CLASS 1) as an alternate to PS 13201.

S. Phosphate Coat per MIL-DTL-16232 as an alternate to PS 13205.

T. Ion Vapor Deposit Aluminum (IVD) per MIL-DTL-83488 as an alternate to PS 13143.

U. Finish Specification 68A900000 and 40M114 are not required and will not be furnished. Finish per the following as an alternate to Drawing Note #26 and PS 13646:

1. Apply one coat Epoxy Waterborne primer per MIL-PRF-85582, Type I, Class 2. Alternate primer, one coat Epoxy-Polamide per MIL-PRF-23377, Type I.

2. Apply two topcoats of Polyurethane per MIL-PRF-85285, Type I, color #17925 (White) per FED-STD-595.

V. After contract award the successful bidder shall provide a copy of the processing documentation (routing documents and process specifications) to LILE for final review before production begins.

W. OO-ALC/LGHLEN system engineering retains all rights to review and accept MRB'S prior to shipment of discrepant items, All deviations, minor and major, from the engineering drawing package will be submitted for MRB disposition.

X. Prior to contract award, the contractor will certify to the government in writing, full compliance with manuals, specifications, and standards called out and required for the manufacture of this contracted landing gear component/assembly. Contractor is responsible to completely search these manuals, specifications, and standards and fully understand the requirements necessary to manufacture landing gear components. Any questions can be forwarded to this office, OO-ALC/LGHLEN.

PREPARED BY	SYMBOL	DATE
DAVID H. ARGYLE	LGMPM	25 Nov 03

REV: B	ENGINEERING DATA REQUIREMENTS CONTINUATION SHEET *(ATTACHMENT "A")*
PART NUMBER: 68A412704-1003	NATIONAL STOCK NUMBER: 1620-01-445-0092

Y. The required forging shall be procured from the qualified forging source, using the original certified forging procedures and dies/tooling.

1. Prior to contract award, the detail part bidder shall provide certification, from the forging source, to the Government that the certified dies and procedures are available and that the forging source has an agreement with the detail parts bidder to provide forgings for their use in the event they are the successful bidder.

2. Prior to production, forging lot qualification shall be accomplished as specified on the forging drawing and SAE AMS-F-7190 (STEEL). The detailed part contractor shall assure that this has been accomplished by the forging source and shall submit certified documentation of accomplishment to the Government.

Z. FORGING SOURCE, CONTROL AND LOCATION OF DIES:

1. Forging Drawing: 68A412704-2005

2. Die Number: 7782

3. Control of Forging Process: McDonnel Douglas Corp.

4. Location of Forging Dies: Kropp Forging Company
5301 West Roosevelt Road
Cicero, Illinois 60650-1273
(708) 652-6691

AA. INSTRUCTIONS FOR QUALIFICATION OF NEW FORGING SOURCE.

Prior to contract award,the contractor will advise the government in writing of their intent to procure new forging dies and the proposed forging source. The contractor will not proceed to obtain new dies without the express consent of the government procuring agency. The government will have unlimited use of the dies developed under this contract. The contractor will inform the forging house in writing, at the same time the order for the dies is placed, that the government has unlimited use rights of the dies and forward a copy of this letter to the Contracting Officer.

PREPARED BY	SYMBOL	DATE
DAVID H. ARGYLE	LGMPM	25 Nov 03

REVISION: *03*

ENGINEERING DATA LIST

* HISTORY *

DATE :	DATA TECH :	ORGN SYMBOL :	PR NR :	APPLICATION:	PAGE
26NOV03	SDA	LGMPM		F15	1 OF 1

CAGE:	MANUFACTURER NAME:	REFERENCE NR:	NOUN :	NSN :
76301	BOEING CO/MC DONNELL ACFT	68A412704-1003	PISTON,LANDING GEAR	1620014450092

CAGE	DRAWING NUMBER	REV	NR SHEETS	NR CARDS	FURN CODE	DIST CODE	NOUN	REQUIREMENTS
76301	MMS224 /		0000	0000	S		MATERIAL SPECIFICATION	OBTAIN DATA FROM WR-ALC (JEDMICS)
98747	OO-ALC/FORM 462 /	B	0003	0000	S		ENG.DATA RQMNTS. (ATTACH. "A")	
76301	PS 11005 /		0000	0000	S		BONDING OF ETCH TEFLON	OBTAIN DATA FROM WR-ALC (JEDMICS)
76301	PS 15063 /		0000	0000	S		STRESS RELIEF	OBTAI DATA FROM WR-ALC(JEDMICS)
76301	PS 15500 /		0000	0000	S		GENERAL HEAT TREATING	OBTAIN DATA FROM WR-ALC(JEDMICS)
76301	PS 15548 /		0000	0000	S		AGE HARDEN	OBTAIN DATA FROM WR-ALC(JEDMICS)
76301	PS 17165 /		0000	0000	S		ETCHING FOR BONDING SURFACE	OBTAIN DATA FROM WR-ALC(JEDMICS)
76301	PS 23041 /		0000	0000	S		MACHINE FINISH	OBTAIN DATA FROM WR-ALC(JEDMICS)
76301	68A410636 WITH P/L /	C	0000	0000	S		BUSHING,FLNGD.TRQ.ARM LUG M.L.G.	OBTAIN DATA FROM WR-ALC (JEDMICS)
76301	68A412704 WITH P/L /	F	0000	0000	S		PISTON ASSEMBLY-M.L.G.	OBTAIN DATA FROM WR-ALC (JEDMICS)
	/18EO							ECO A497011
	/19EO							ECO A197563
	/20EO							ECO A183099
76301	68A413711 WITH P/L /	A	0000	0000	S		PAD-BRAKE LINES	OBTAIN DATA FROM WR-ALC (JEDMICS)
76301	68B410067 WITH P/L /	C	0000	0000	S		HEAD, PISTON-MAIN LANDING GEAR	OBTAIN DATA FROM WR-ALC (JEDMICS)

STANDARD ENGINEERING TEXT

ALL GOVERNMENT/MILITARY SPECIFICATIONS AND STANDARDS WILL NOT BE FURNISHED.
TO OBTAIN THESE SPECS AND STDS WRITE TO:
DODSSP
BUILDING 4/SECTION D
700 ROBINS AVE.
PHILADELPHIA PA. 19111-5098
TELEPHONE: (215) 697-2179
FAX: (215) 697-1462 TO VIEW OR ORDER: HTTP://WWW.DODSSP.DAPS.MIL

ENGINEERING DATA LIST REMARKS

FURNISHED METHOD CODE LEGEND:

C - CLASSIFIED DOCUMENT.
S - FURNISHED WITH SOLICITATION.
M - STABLE BASE DRAWING REQUIRED; FURNISHED WITH CONTRACT AWARD.
X - DATA SUPPLIED (NOT IN EDCARS).
R - FURNISHED BY PCD UPON REQUEST.
P - PARTIAL DOCUMENT FURNISHED.
V - VENDOR DRAWING; (NOT PROVIDED).
G - GOV'T DOCUMENT.
O - OTHERS, CONTRACTOR MUST ACQUIRE.
A - DATA NOT AVAILABLE.

REV:	ENGINEERING DATA REQUIREMENTS
A	*(ATTACHMENT "A")*

NOTE: MILITARY SPECIFICATIONS I/STANDARDS WILL NOT BE FURNISHED IN THE BID SET.

1. THE FOLLOWING INSTRUCTIONS ARE FURNISHED FOR THE MANUFACTURE OF

PISTON ASSY - NLG SHOCK STRUT

2. PART NUMBER	3. NATIONAL STOCK NUMBER
2007602-103	1620-01-252-4042

4. THE FOLLOWING SPECIFICATIONS/STANDARDS, ETC., WILL BE USED IN LIEU OF THE DATA INDICATED. THE SUPERSEDED DATA WILL NOT BE FURNISHED UNLESS SO INDICATED.

5. PER DRAWING 2007602, FLAG NOTE 1, DRAWING 2007702, FLAG NOTE 5, AND DRAWING 2007652, FLAG NOTE 1, USE MATERIAL SAE AMS 6257 IN LIEU OF MIL-S-8844.

6. HEAT TREAT PER SAE AMS-H-6875 AS AN ALTERNATE TO MIL-H-6875 AND MM4995.

7. ON PARTS HEAT TREATED OVER 180 KSI AND ABOVE, ANY SURFACE GROUND/MACHINED AFTER HEAT TREAT, SHALL BE INSPECTED FOR ABUSIVE GRINDING/MACHINING BURNS PER MIL-STD-867 AS AN ALTERNATE TO MM5512. GRINDING SHALL BE PER MIL-STD-866 AS AN ALTERNATE TO MM5759.

8. IDENTIFICATION AND MARKING PER MIL-STD-130 IN LIEU OF TM1040.

9. PERFORM MAGNETIC PARTICLE INSPECTION PER ASTM E 1444 AS AN ALTERNATE TO MIL-I-6868. USE FULL WAVE DIRECT CURRENT (FWDC), WET CONTINUOUS METHOD, FLUORESCENT TYPE WITH THE FOLLOWING ACCEPTANCE/REJECTION CRITERIA: NO DEFECTS ALLOWED. THE INTENT OF NO DEFECTS ALLOWED IS THAT THE INSPECTION IS CONDUCTED AT THE REQUIRED SENSITIVITY LEVEL AND THERE SHALL BE NO INDICATIONS ALLOWED. THE INSPECTOR PERFORMING THE INSPECTION SHALL BE CERTIFIED TO LEVEL II WITH THE INSPECTION PROCEDURE DEVELOPED BY A LEVEL III AS SPECIFIED IN AIA/NAS NAS-410.

10. SHOT PEEN PER SAE AMS-S-13165 IN LIEU OF MIL-S-13165.

11. DIMENSIONS AND TOLERANCING PER ASME Y14.5 IN LIEU OF ANSI Y14.5.

12. SPECIFICATION MM4951 CADMIUM PLATING WILL NOT BE FURNISHED AS IT IS LIMITED (PROPRIETARY) DATA. AS AN ALTERNATE USE SPECIFICATION MM5542, CADMIUM PLATING. (PROVIDED)

13. SERIAL NUMBER SHALL BE VIBROPEENED (WITH VIBRATING PNEUMATIC PENCIL), IN 0.09" LETTERS 0.004" - 0.007" DEEP IN THE LOCATION INDICATED. IF THE DRAWING DOES NOT INDICATE A LOCATION, OO-ALC/LGHLEN SHALL PROVIDE S/N LOCATION INSTRUCTIONS. SERIALIZATION OF ITEM SHALL BE ACCOMPLISHED AS FOLLOWS: THE SERIALIZATION SHALL BEGIN WITH THE CAGE OF THE CONTRACTOR NAMED ON THE CONTRACT, FOLLOWED BY A DASH AND THE 2 DIGIT YEAR OF MANUFACTURE, FOLLOWED BY A DASH AND A SEQUENTIALLY UNIQUE 3 DIGIT NUMBER. A CONTRACTOR WHO RECEIVES NUMEROUS INTERMITTENT CONTRACTS SHALL START SERIALIZATION OF ITEM WITH THE NEXT NUMBER IN SEQUENCE OF THE PRIOR CONTRACT. IF A CONTRACT PRODUCES MORE THAN 999 ITEMS, THE SERIAL NUMBER SHOULD BEGIN USING 4 DIGIT SERIAL NUMBERS. THE SERIAL NUMBER SHOULD APPEAR LIKE THIS: "S/N 98747-03-001".

14. CORROSION PROTECTION PER MIL-C-16173, GRADE 1 OR MIL-C-11796, CLASS 1 OR 2 IN LIEU OF MM5752.

15. CHROME PLATE TO DRAWING REQUIREMENTS AND SAE AMS-QQ-C-320 IN LIEU OF QQ-C-320.

16. SURFACE TEXTURE PER ASME B46.1 IN LIEU OF ASA B46.1.

PREPARED BY	SYMBOL	DATE
CAROL HYER	LGMPM	1 Dec 03

REV: A	ENGINEERING DATA REQUIREMENTS CONTINUATION SHEET *(ATTACHMENT "A")*	
PART NUMBER 2007602-103		NATIONAL STOCK NUMBER 1620-01-252-4042

18. INSTALL BUSHINGS PER THE FOLLOWING IN LIEU OF MM5743:

A. THE BUSHING INSTALLATIONS SHALL BE ACCOMPLISHED IN SUCH A MANNER AS TO AVOID DAMAGE TO THE FINISH ON THE I.D. OF THE HOUSING INTO WHICH THE BUSHING IS INSTALLED, OR THE FINISH OF THE O.D. OF THE BUSHING. FORCED INSTALLATION OF SUB-ZERO INSTALLATIONS, SUCH AS THE USE OF A PRESS OR HAMMER IS NOT PERMITTED, AND IS NOT ACCEPTABLE. A SMALL NON-METALLIC HAMMER MAY BE USED TO TAP THE BUSHING INTO ALIGNMENT WITH THE HOUSING BORE, OR TO SEAT THE BUSHING.

B. PRIOR TO BUSHING INSTALLATION, THE PARTS AND HOUSING BORE SHALL BE CLEANED WITH A CLEANING SOLVENT TO REMOVE ALL CONTAMINATION.

C. LIQUID NITROGEN SHALL BE USED FOR ALL SUB-ZERO INSTALLATIONS UNLESS SOME OTHER SUB-ZERO COOLANT IS SPECIFIED, AND APPROVED BY OO-ALC/LGHLEN ENGINEERING. THE SOAK TIME OF THE BUSHING IN THE LIQUID NITROGEN SHALL BE SUFFICIENT TO ALLOW THE BUSHING TO REACH THE SAME TEMPERATURE AS THE COOLANT.

D. THE BUSHING SHALL BE INSTALLED INTO THE HOUSING IMMEDIATELY UPON REMOVAL FROM THE COOLANT WITH AN ABSOLUTE MINIMUM OF LOST TIME. TRIAL RUNS SHALL BE ACCOMPLISHED AS NECESSARY TO MINIMIZE INSTALLATION TIME WHICH SHOULD BE IN THE ORDER OF ABOUT SEVEN (7) SECONDS MAXIMUM.

E. IT MAY OCCASIONALLY BE NECESSARY TO HEAT THE HOUSING INTO WHICH THE BUSHING IS TO BE INSTALLED, IN ADDITION TO SUB-ZERO COOLING OF THE BUSHING. DETAIL PARTS IN PROCESS WILL NOT HAVE PAINT OR SEALANT OR OTHER ORGANIC MATERIAL APPLIED PRIOR TO HEATING, THE PARTS SHALL BE HEATED BY THE USE OF RADIANT HEAT TECHNIQUES, SUCH AS THERMAL BLANKETS, INFRARED LAMPS ETC.; TO THE MAXIMUM TEMPERATURE OF 250 F. TEMPERATURE MEASURING DEVICES SHALL BE USED TO MONITOR HEAT AND SHALL BE LOCATED ON AREAS OF THE PART EXPECTED TO REACH MAXIMUM TEMPERATURE. NO SCALING, OXIDATION, OR CORROSION SHALL BE PERMITTED.

F. BUSHINGS WITHOUT FLANGES SHALL BE INSTALLED INTO HOUSING BORE WHICH HAS RECEIVED A LIGHT COAT OF SEALANT PER MIL-PRF-81733. INSTALL SHRUNKEN BUSHING AND WIPE OFF ANY EXCESS SEALANT THAT MAY HAVE EXTRUDED AROUND THE PERIPHERY OF BOTH ENDS OF THE BUSHINGS.

G. BUSHINGS WITH FLANGES SHALL BE INSTALLED IN A SIMILAR MANNER AS PARAGRAPH (F) EXCEPT SEALANT SHALL ALSO BE APPLIED TO FACE OF LUG UNDER FLANGE. SEALANT SHALL BE APPLIED IN SUCH A MANNER AS TO ENSURE COMPLETE COVERAGE OF INSIDE FACE OF BUSHING FLANGE WHEN BUSHING IS INSTALLED. WIPE OFF ANY EXCESS SEALANT AROUND PERIPHERY OF BUSHING FLANGE. WIPE ANY EXCESS SEALANT FROM OTHER END OF BUSHING ALSO.

H. FOR BUSHINGS WITH EXTERNAL GREASE GROOVES THE INSIDE OF THE LUG WILL BE COATED WITH MIL-C-16173 PRIOR TO BUSHING INSTALLATION AND FACE OF LUG WILL BE COATED WITH MIL-PRF-81733 PER PARAGRAPH G, IF BUSHING IS FLANGED.

19. APPLY A THIN UNIFORM COATING OF PRIMER PER MIL-PRF-23377 OR MIL-PRF-85582 (AFTER CADMIUM PLATING) TO ALL BUSHING BORES AND ALLOW TO FULLY CURE PRIOR TO INSTALLATION OF BUSHING (PRIMER SHALL NOT OBSTRUCT GREASE PASSAGES).

PREPARED BY	SYMBOL	DATE
CAROL HYER	LGMPM	1 Dec 03

REV: A	ENGINEERING DATA REQUIREMENTS CONTINUATION SHEET *(ATTACHMENT "A")*
PART NUMBER: 2007602-103	NATIONAL STOCK NUMBER: 1620-01-252-4042

20. CLEANLINESS PER SAE AMS 2300 IN LIEU OF AMS 2300.

21. APPLY DRY FILM LUBRICANT PER MIL-L-23398 TYPE I, AS AN ALTERNATE TO MM1920.

22. CADMIUM PLATE TO DRAWING REQUIREMENTS AND SAE AMS-QQ-P-416 IN LIEU OF QQ-P-416.

23. PER DRAWING 2007409, USE MATERIAL 4330V MODIFIED STEEL PER SAE AMS 6411 IN LIEU OF AMS 6411.

24. PAINT REQUIREMENTS AS FOLLOWS:

A. APPLY ONE COAT EPOXY WATERBORNE PRIMER PER MIL-PRF-85582, TYPE I, CLASS 2. ALTERNATE ONE COAT OF EPOXY POLYAMIDE PRIMER PER MIL-PRF-23377, TYPE I IN LIEU OF MIL-P-23377.

B. APPLY TWO TOPCOATS POLYURETHANE PER MIL-PRF-85285, TYPE I, COLOR NUMBER 17925 (WHITE) PER FED-STD-595 IN LIEU OF MIL-C-83286.

25. PERFORM FLUORESCENT PENETRANT INSPECTION PER ASTM E1417, TYPE I, METHOD B OR C, LEVEL 3 OR 4, AS AN ALTERNATE TO MIL-I-6866, WITH THE FOLLOWING ACCEPTANCE/REJECTION CRITERIA: NO DEFECTS ALLOWED. THE INTENT OF NO DEFECTS ALLOWED IS THAT THE INSPECTION IS CONDUCTED AT THE REQUIRED SENSITIVITY LEVEL AND THERE SHALL BE NO INDICATIONS ALLOWED. THE INSPECTOR PERFORMING THE INSPECTION SHALL BE CERTIFIED TO LEVEL II WITH THE INSPECTION PROCEDURE DEVELOPED BY A LEVEL III AS SPECIFIED IN AIA/NAS NAS-410.

26. PER DRAWINGS 2007404-83 AND 2007404-97 USE MATERIAL 7075-T73 AL ALLOY BAR PER SAE AMS-QQ-A-225/9 IN LIEU OF QQ-A-225/9, OR SAE AMS-QQ-A-200/11 IN LIEU OF QQ-A-200/11.

27. PER DRAWING 2006622, FLAG NOTE 12, USE MATERIAL SAE AMS-S-5000 IN LIEU OF MIL-S-5000 OR AMS 6414 IN LIEU OF MIL-S-8844, CLASS 1.

28. THREADS TO BE SAFETY CRITICAL.

29. OO-ALC/LGHLEN SYSTEM ENGINEERING RETAINS ALL RIGHTS TO REVIEW AND ACCEPT MATERIAL REVIEW BOARD (MRB'S) DISPOSITIONS PRIOR TO SHIPMENT OF DISCREPANT ITEM. ALL DEVIATIONS, MINOR AND MAJOR, FROM THE ENGINEERING DRAWING PACKAGE SHALL BE SUBMITTED FOR MRB DISPOSITION.

30. PRIOR TO CONTRACT AWARD, THE CONTRACTOR SHALL CERTIFY TO THE GOVERNMENT IN WRITING FULL COMPLIANCE WITH MANUALS, SPECIFICATIONS, AND STANDARDS CALLED OUT AND REQUIRED FOR THE MANUFACTURE OF THIS CONTRACTED LANDING GEAR COMPONENT/ASSEMBLY. CONTRACTOR IS RESPONSIBLE TO COMPLETELY SEARCH THESE MANUALS, SPECIFICATIONS, AND STANDARDS AND FULLY UNDERSTAND THE REQUIREMENTS NECESSARY TO MANUFACTURE LANDING GEAR COMPONENTS. ANY QUESTIONS CAN BE FORWARDED TO OO-ALC/LGHLEN.

31. AFTER CONTRACT AWARD, THE SUCCESSFUL BIDDER SHALL PROVIDE A COPY OF THE PROCESSING DOCUMENTATION (ROUTING DOCUMENTS AND PROCESS SPECIFICATIONS) TO LGHLEN FOR FINAL REVIEW BEFORE PRODUCTION BEGINS.

PREPARED BY	SYMBOL	DATE
CAROL HYER	LGMPM	1 Dec 03

REV: A	ENGINEERING DATA REQUIREMENTS CONTINUATION SHEET *(ATTACHMENT "A")*
PART NUMBER 2007602-103	NATIONAL STOCK NUMBER 1620-01-252-4042

32. THE REQUIRED FORGING WILL BE PROCURED FROM THE QUALIFIED FORGING SOURCE USING THE ORIGINAL CERTIFIED FORGING PROCEDURES AND DIES/TOOLING.

A. PRIOR TO CONTRACT AWARD, THE DETAILED PART BIDDER SHALL PROVIDE CERTIFICATION, FROM THE FORGING SOURCE, TO THE GOVERNMENT THAT THE CERTIFIED DIES AND PROCEDURES ARE AVAILABLE AND THE FORGING SOURCE HAS AN AGREEMENT WITH THE DETAIL PART BIDDER TO PROVIDE FORGINGS FOR THEIR USE IN THE EVENT THEY ARE THE SUCCESSFUL BIDDER.

B. PRIOR TO PRODUCTION, FORGING LOT QUALIFICATION SHALL BE ACCOMPLISHED AS SPECIFIED ON THE FORGING DRAWING AND SAE AMS-F-7190 FOR STEEL FORGINGS AND SAE AMS-A-22771 FOR ALUMINUM FORGINGS. THE DETAILED PART CONTRACTOR SHALL ASSURE THAT THIS HAS BEEN ACCOMPLISHED BY THE FORGING SOURCE AND SHALL SUBMIT CERTIFIED DOCUMENTATION OF ACCOMPLISHMENT TO THE GOVERNMENT.

33. FORGING SOURCE, CONTROL AND LOCATION OF DIES:

A. FORGING DRAWING: 2007702-1

B. DIE NUMBER: 10824

C. CONTROL OF FORGING PROCESS: GOODRICH

D. LOCATION OF FORGING DIES:

SIFCO IND., INC
SIFCO FORGE GROUP
970 EAST 64TH STREET
CLEVELAND, OH 44103-1620
PHONE: 216-432-6287
POC: MARILYN IRVINE
CAGE: 78226

PREPARED BY	SYMBOL	DATE
CAROL HYER	LGMPM	1 Dec 03

REVISION: *02*

ENGINEERING DATA LIST

* HISTORY *

DATE :	DATA TECH :	ORGN SYMBOL :	PR NR :	APPLICATION:	PAGE
01DEC03	SCH	LGMPM		F-16	1 OF 1

CAGE:	MANUFACTURER NAME:	REFERENCE NR:	NOUN :	NSN :
13002	GOODRICH	2007602-103	PISTON, LANDING GEAR	1620012524042

CAGE	DRAWING NUMBER	REV	NR SHEETS	NR CARDS	FURN CODE	DIST CODE	NOUN	REQUIREMENTS
39661	MM4990 /		0000	0000	S		HEAT TREAT SPECIFICATION	
17576	MM5542 /		0000	0000	S		CADMIUM PLATING SPECIFICATION	
98747	OO-ALC FORM 462 /	A	0004	0000	X		ENGR DATA RQMTS (ATTACH A)	
17576	2006622 /	B	0001	0000	S		BUSHING, AXLE - NLG SHOCK STRUT	
17576	2007404-43 /	B	0001	0000	S		BUSHING, SLEEVE - LANDING GEAR	
	/98C0292							ECO
17576	2007404-77 /		0001	0000	S		BUSHING, SLEEVE - LANDING GEAR	
	/98C0297							ECO
17576	2007404-79 /		0001	0000	S		BUSHING, SLEEVE - LANDING GEAR	
	/98C0298							ECO
17576	2007404-97 /		0001	0000	S		BUSHING, SLEEVE LANDING GEAR	
17576	2007409 /	D	0001	0000	S		PIN, THREADED	
17576	2007602 /	E	0001	0000	S		PISTON ASSY - NLG SHOCK STRUT	
	/97C0385							ECO
17576	2007652 /	E	0001	0000	S		AXLE - NLG	
	/97C0384							ECO
17576	2007702 /	A	0001	0000	S		PISTON, SHOCK STRUT, NLG FORGING	

STANDARD ENGINEERING TEXT

ENGINEERING DATA LIST REMARKS

FURNISHED METHOD CODE LEGEND:

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X - DATA SUPPLIED (NOT IN EDCARS).
R - FURNISHED BY PCD UPON REQUEST.
P - PARTIAL DOCUMENT FURNISHED.
V - VENDOR DRAWING; (NOT PROVIDED).
G - GOV'T DOCUMENT.
O - OTHERS, CONTRACTOR MUST ACQUIRE.
A - DATA NOT AVAILABLE.

REV: A	ENGINEERING DATA REQUIREMENTS (ATTACHMENT "A")

NOTE: MILITARY SPECIFICATIONS I/STANDARDS WILL NOT BE FURNISHED IN THE BID SET.

1. THE FOLLOWING INSTRUCTIONS ARE FURNISHED FOR THE MANUFACTURE OF

CYLINDER, OUTER SHOCK STRUT, MLG

2. PART NUMBER	3. NATIONAL STOCK NUMBER
2007107-1	1620-01-252-4035

4. THE FOLLOWING SPECIFICATIONS/STANDARDS, ETC., WILL BE USED IN LIEU OF THE DATA INDICATED. THE SUPERSEDED DATA WILL NOT BE FURNISHED UNLESS SO INDICATED.

5. MATERIAL: 300M STEEL PER SAE AMS 6257 IN LIEU OF MIL-S-8844.

6. HEAT TREAT PER SAE AMS-H-6875 IN LIEU OF MIL-H-6875.

7. ON PARTS HEAT TREATED 180 KSI AND ABOVE, ANY SURFACES GROUND/MACHINED AFTER HEAT TREAT WILL BE INSPECTED FOR BURNS PER MIL-STD-867. GRINDING SHALL BE PER MIL-STD-866 IN LIEU OF MM5759.

8. PERFORM MAGNETIC PARTICLE INSPECTION PER ASTM E 1444 AS AN ALTERNATE TO MIL-I-6868. USE FULL WAVE DIRECT CURRENT (FWDC), WET CONTINUOUS METHOD, FLUORESCENT TYPE WITH THE FOLLOWING ACCEPTANCE/REJECTION CRITERIA: NO DEFECTS ALLOWED. THE INTENT OF NO DEFECTS ALLOWED IS THAT THE INSPECTION IS CONDUCTED AT THE REQUIRED SENSITIVITY LEVEL AND THERE SHALL BE NO INDICATIONS ALLOWED. THE INSPECTOR PERFORMING THE INSPECTION SHALL BE CERTIFIED TO LEVEL II WITH THE INSPECTION PROCEDURE DEVELOPED BY A LEVEL III AS SPECIFIED IN AIA/NAS NAS-410.

9. SHOT PEEN PER SAE AMS-S-13165 IN LIEU OF MIL-S-13165.

10. CADMIUM PLATE SPECIFICATION MM4951 WILL NOT BE FURNISHED AS IT IS LIMITED (PROPRIETARY) DATA. AS AN ALTERNATE USE SPECIFICATION MM5542. (PROVIDED)

11. DIMENSIONING AND TOLERANCING PER ASME Y14.5 IN LIEU OF ANSI Y14.5.

12. SERIAL NUMBER SHALL BE VIBROPEENED (WITH VIBRATING PNEUMATIC PENCIL), IN 0.09" LETTERS 0.004" - 0.007" DEEP IN THE LOCATION INDICATED. IF THE DRAWING DOES NOT INDICATE A LOCATION, OO-ALC/LGHLEN SHALL PROVIDE S/N LOCATION INSTRUCTIONS. SERIALIZATION OF ITEM SHALL BE ACCOMPLISHED AS FOLLOWS: THE SERIALIZATION SHALL BEGIN WITH THE CAGE OF THE CONTRACTOR NAMED ON THE CONTRACT, FOLLOWED BY A DASH AND THE 2 DIGIT YEAR OF MANUFACTURE, FOLLOWED BY A DASH AND A SEQUENTIALLY UNIQUE 3 DIGIT NUMBER. A CONTRACTOR WHO RECEIVES NUMEROUS INTERMITTENT CONTRACTS SHALL START SERIALIZATION OF ITEM WITH THE NEXT NUMBER IN SEQUENCE OF THE PRIOR CONTRACT. IF A CONTRACT PRODUCES MORE THAN 999 ITEMS, THE SERIAL NUMBER SHOULD BEGIN USING 4 DIGIT SERIAL NUMBERS. THE SERIAL NUMBER SHOULD APPEAR LIKE THIS: "S/N 98747-03-001".

13. CORROSION PROTECTION PER MIL-C-16173 GRADE 1 OR MIL-C-11796 CLASS 1 OR 2 AS AN ALTERNATE TO MM5752.

14. IDENTIFICATION AND MARKING PER MIL-STD-130 AS AN ALTERNATE TO TM1040.

15. SURFACE TEXTURE PER ASME B46.1 IN LIEU OF ASA B46.1.

16. CHROME PLATE TO DRAWING REQUIREMENTS AND SAE AMS-QQ-C-320 IN LIEU OF QQ-C-320.

PREPARED BY	SYMBOL	DATE
CAROL HYER	LGMPM	1 Dec 03

REV: A	ENGINEERING DATA REQUIREMENTS CONTINUATION SHEET *(ATTACHMENT "A")*
PART NUMBER 2007107-1	NATIONAL STOCK NUMBER 1620-01-252-4035

17. PAINT REQUIREMENTS AS FOLLOWS:

A. APPLY ONE COAT EPOXY WATERBORNE PRIMER PER MIL-PRF-85582, TYPE I, CLASS 2. ALTERNATE ONE COAT OF EPOXY POLYAMIDE PRIMER PER MIL-PRF-23377, TYPE I IN LIEU OF MIL-P-23377.

B. APPLY TWO TOPCOATS POLYURETHANE PER MIL-PRF-85285, TYPE I, COLOR NUMBER 17925 (WHITE) PER FED-STD-595 AS AN ALTERNATE TO MIL-C-83286.

18. CLEANLINESS PER SAE AMS 2300 IN LIEU OF AMS 2300.

19. OO-ALC/LGHLEN SYSTEM ENGINEERING RETAINS ALL RIGHTS TO REVIEW AND ACCEPT MATERIAL REVIEW BOARD (MRB'S) DISPOSITIONS PRIOR TO SHIPMENT OF DISCREPANT ITEM. ALL DEVIATIONS, MINOR AND MAJOR, FROM THE ENGINEERING DRAWING PACKAGE SHALL BE SUBMITTED FOR MRB DISPOSITION.

20. PRIOR TO CONTRACT AWARD, THE CONTRACTOR SHALL CERTIFY TO THE GOVERNMENT IN WRITING FULL COMPLIANCE WITH MANUALS, SPECIFICATIONS, AND STANDARDS CALLED OUT AND REQUIRED FOR THE MANUFACTURE OF THIS CONTRACTED LANDING GEAR COMPONENT/ASSEMBLY. CONTRACTOR IS RESPONSIBLE TO COMPLETELY SEARCH THESE MANUALS, SPECIFICATIONS, AND STANDARDS AND FULLY UNDERSTAND THE REQUIREMENTS NECESSARY TO MANUFACTURE LANDING GEAR COMPONENTS. ANY QUESTIONS CAN BE FORWARDED TO OO-ALC/LGHLEN.

21. AFTER CONTRACT AWARD, THE SUCCESSFUL BIDDER SHALL PROVIDE A COPY OF THE PROCESSING DOCUMENTATION (ROUTING DOCUMENTS AND PROCESS SPECIFICATIONS) TO LGHLEN FOR FINAL REVIEW BEFORE PRODUCTION BEGINS.

22. THE REQUIRED FORGING WILL BE PROCURED FROM THE QUALIFIED FORGING SOURCE USING THE ORIGINAL CERTIFIED FORGING PROCEDURES AND DIES/TOOLING.

A. PRIOR TO CONTRACT AWARD, THE DETAILED PART BIDDER SHALL PROVIDE CERTIFICATION, FROM THE FORGING SOURCE, TO THE GOVERNMENT THAT THE CERTIFIED DIES AND PROCEDURES ARE AVAILABLE AND THE FORGING SOURCE HAS AN AGREEMENT WITH THE DETAIL PART BIDDER TO PROVIDE FORGINGS FOR THEIR USE IN THE EVENT THEY ARE THE SUCCESSFUL BIDDER.

B. PRIOR TO PRODUCTION, FORGING LOT QUALIFICATION SHALL BE ACCOMPLISHED AS SPECIFIED ON THE FORGING DRAWING AND SAE AMS-F-7190 FOR STEEL FORGINGS AND SAE AMS-A-22771 FOR ALUMINUM FORGINGS. THE DETAILED PART CONTRACTOR SHALL ASSURE THAT THIS HAS BEEN ACCOMPLISHED BY THE FORGING SOURCE AND SHALL SUBMIT CERTIFIED DOCUMENTATION OF ACCOMPLISHMENT TO THE GOVERNMENT.

PREPARED BY	SYMBOL	DATE
CAROL HYER	LGMPM	1 Dec 03

REV: A	ENGINEERING DATA REQUIREMENTS CONTINUATION SHEET *(ATTACHMENT "A")*
PART NUMBER 2007107-1	NATIONAL STOCK NUMBER 1620-01-252-4035

23. FORGING SOURCE, CONTROL AND LOCATION OF DIES:

A. FORGING DRAWING: 2007207-1

B. CONTROL OF FORGING PROCESS: USAF

C. LOCATION OF FORGING DIES:

SIFCO IND., INC
970 E. 64th STR.
CLEVELAND, OH 44103-1620
PHONE: 216-881-8600
POC: MARILYN IRVINE
DIE # 10822

KROPP FORGE
5301 W. ROOSEVELT ROAD
CICERO, IL 60804
PHONE: 708-652-6691
POC: CHUCK MEYER
DIE # 8105

W. PAT CROW, INC.
200 LUXTON STR
P.O. BOX 1720
FT. WORTH, TX 76101-1720
PHONE: 817-536-2861 X280
POC: LAURA RIVERA
DIE # 4912

24. REFERENCE DRAWING 2007207, LOCATION B5, REVISE THE FOLLOWING CONDITIONS DUE TO RESTRICTIVE FORGING TOLERANCES.

CONDITION:	WAS:	NOW:
THICKNESS	+.04 / -.02	+.07 /-.02
TO BE STRAIGHT WITHIN	.01	.03
MAX MISMATCH	.02	.045

PREPARED BY	SYMBOL	DATE
CAROL HYER	LGMPM	1 Dec 03

REVISION: 06

ENGINEERING DATA LIST

* HISTORY *

DATE :	DATA TECH :	ORGN SYMBOL :	PR NR :	APPLICATION:	PAGE
01DEC03	SCH	LGMPM		F-16	1 OF 1

CAGE:	MANUFACTURER NAME:	REFERENCE NR:	NOUN :	NSN :
13002	GOODRICH	2007107-1	OUTER CYLINDER ASSY	1620012524035

CAGE	DRAWING NUMBER	REV	NR SHEETS	NR CARDS	FURN CODE	DIST CODE	NOUN	REQUIREMENTS
39661	MM4990 /		0000	0000	S		HEAT TREAT SPECIFICATION	
17576	MM5542 /		0000	0000	S		CADMIUM PLATING SPECIFICATION	
98747	OO-ALC FORM 462 /	A	0003	0000	X		ENGR DATA RQMTS (ATTACH A)	
17576	2007107 /	D	0001	0000	S		CYLINDER, OUTER - SHOCK STRT MLG	
17576	2007207 /		0001	0000	S		CYL, OUTR, SHK STR - MLG, FORG	

STANDARD ENGINEERING TEXT

ENGINEERING DATA LIST REMARKS

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P - PARTIAL DOCUMENT FURNISHED.
V - VENDOR DRAWING; (NOT PROVIDED).
G - GOV'T DOCUMENT.
O - OTHERS, CONTRACTOR MUST ACQUIRE.
A - DATA NOT AVAILABLE.

REVISION: *01*

ENGINEERING DATA LIST

* HISTORY *

DATE :	DATA TECH :	ORGN SYMBOL :	PR NR :	APPLICATION:	PAGE
06FEB03	SSF	LGMPM		T-38	1 OF 1

CAGE:	MANUFACTURER NAME:	REFERENCE NR:	NOUN :	NSN :
76823	NORTHROP GRUMMAN CORP EL SEGUNDO CA	3-41606-3	PISTON,LANDING GEAR	1620009490417LE

CAGE	DRAWING NUMBER	REV	NR SHEETS	NR CARDS	FURN CODE	DIST CODE	NOUN	REQUIREMENTS
98747	00-ALC 462/LGMPM /		0000	0000	S		ATCH "A"	
76823	3-40513 /	E	0000	0000	S		BUSHING - FLANGED	
76823	3-40526 /	D	0000	0000	S		PIN - PISTON HEAD LOCK	
76823	3-40528 /	L	0000	0000	S		MARKING - LADING GEAR	
76823	3-41603 /	D	0000	0000	S		COLLAR, LOWER TORQUE, NLG	
76823	3-41605 /	E	0000	0000	S		PISTON ASSY - NLG	
76823	3-41606 /	C	0000	0000	S		PISTON, NOSE LANDING GEAR	
	/84C451							ECO
76823	3-41631 /	A	0000	0000	S		BUSHING, TOWING DISCONNECT - NLG	
76823	6-41621 /	C	0000	0000	S		RETAINER, LOWER TORQUE COLLAR	
76823	9756-3 /	AD	0000	0000	S		HEAD - PISTON, NLG	
76823	9756C-29 /	AE	0000	0000	S		WASHER, NLG	

STANDARD ENGINEERING TEXT

ALL GOVERNMENT/MILITARY SPECIFICATIONS AND STANDARDS WILL NOT BE FURNISHED.
TO OBTAIN THESE SPECS AND STDS WRITE TO:
DODSSP
BUILDING 4/SECTION D
700 ROBINS AVE.
PHILADELPHIA PA. 19111-5098
TELEPHONE: (215) 697-2179
FAX: (215) 697-1462 TO VIEW OR ORDER: HTTP://WWW.DODSSP.DAPS.MIL

ENGINEERING DATA LIST REMARKS

FURNISHED METHOD CODE LEGEND:

C - CLASSIFIED DOCUMENT.
S - FURNISHED WITH SOLICITATION.
M - STABLE BASE DRAWING REQUIRED; FURNISHED WITH CONTRACT AWARD
X - DATA SUPPLIED (NOT IN EDCARS).
R - FURNISHED BY PCD UPON REQUEST.
P - PARTIAL DOCUMENT FURNISHED.
V - VENDOR DRAWING; (NOT PROVIDED)
G - GOV'T DOCUMENT.
O - OTHERS, CONTRACTOR MUST ACQUIRE.
A - DATA NOT

REV:	ENGINEERING DATA REQUIREMENTS *(ATTACHMENT "A")*

NOTE: MILITARY SPECIFICATIONS I/STANDARDS WILL NOT BE FURNISHED IN THE BID SET.

1. THE FOLLOWING INSTRUCTIONS ARE FURNISHED FOR THE MANUFACTURE OF

PISTON, NLG ASSY OF

2. PART NUMBER	3. NATIONAL STOCK NUMBER
3-41606-3	**1620-00-949-0417 LE**

4. THE FOLLOWING SPECIFICATIONS/STANDARDS, ETC., WILL BE USED IN LIEU OF THE DATA INDICATED. THE SUPERSEDED DATA WILL NOT BE FURNISHED UNLESS SO INDICATED.

5. Markings and Identification per MIL-STD-130 in lieu of IM-8 and MA-19.9.

6. Safety Procedures Per NASM20995 and NASM33540 in Lieu of FH-12.

7. Install Bolts, Screw, Washers, Pins, Etc. per best shop procedure in Lieu of FH-11 and FH-12.

8. Aircraft lubricant per MIL-HDBK-838 in Lieu of L-3.

9. Surface Roughness per ANSI B46.1 in Lieu of MIL-STD-10.

10. Cadmium Plate per SAE-AMS-QQ-P-416A Type II, Class 3 in Lieu of FP-2.

11. Heat Treat per SAE AMS-H6875 in Lieu of HT-3.2.

12. Solid Film Lubricant per MIL-L-46010 Type 1 or MIL-L-23398 in Lieu of MAI1115 and L-6.

13. Threads per MIL-S8879, Safety Critical, in Lieu of FH-32.

14. Perform Magnetic Particle inspection per ASTM E 1444 in Lieu of MIL-I-6868. Use full wave direct current (FWDC). Wet continuous method, Fluorescent Type with the following acceptance/rejection Criteria: NO DEFECTS ALLOWED. The intent of NO DEFECTS ALLOWED. is that the inspection is conducted at the required sensitivity level and there shall be no indications allowed. The inspector performing the inspection shall be certified to Level II with the inspection procedure developed by a level III as specified in NAS-410.

15. Perform Fluorescent penetrant inspection per ASTM E 1417, Type I, Method B or C, Level 3 or 4 in lieu of MIL-I-6866 with the following Acceptance/Rejection Criteria: NO DEFECTS ALLOWED. The intent of NO DEFECTS ALLOWED is that the inspection is conducted at the required Sensitivity Level and there shall be no indications allowed. The inspector performing the inspection shall be certified to Level II with the inspection procedure developed by a Level III as specified in NAS-410.

16. Chrome Plate Per MIL-STD-1907. Type 1 Class 2 in Lieu of FP-6.1.

17. Shot Peen per SAE AMS-S-13165 in Lieu of MA-57.

18. After contract award, the successful bidder shall provide a copy of the processing documentation (Routing Documents and Process Specifications) To LGHLEN for Final Review before production begins.

19. OO-ALC/LGHLEN System Engineering retains all right to review and accept Material Review Board (MRB's) Dispositions prior to shipment of Discrepant item. All Deviations, Minor and Major, From the Engineering Drawing Package shall be submitted for MRB Disposition.

PREPARED BY	SYMBOL	DATE
SANDI L. FIELD	LGMPM	20030210

REV:	ENGINEERING DATA REQUIREMENTS CONTINUATION SHEET *(ATTACHMENT "A")*
PART NUMBER: 3-41606-3	NATIONAL STOCK NUMBER: 1620-00-949-0417 LE

20. Prior to contract award, the Contractor shall certify to the Government in writing full compliance with Manuals, Specifications and Standards called out and required for the Manufacture of this contracted landing Gear Component/Assembly. Contractor is responsible to completely search these Manuals, Specifications and Standards and fully understand the requirements necessary to manufacture Landing Gear Components. Any Questions can be forwarded to OO-ALC/LGHLE.

21. Apply a Thin Uniform Coating of Primer per MIL-PRF-23377 or MIL-PRF-85582 (After CADMIUM PLATING) to all Bushing Bores and allow to fully cure prior to installation of Bushing (Primer Shall Not Obstruct Grease Passages).

22. Per Flag Note 8, Drawing 2007302, install bushings per the following in Lieu of MM5743:

A. The Bushing Installations shall e accomplished in such a manner as to avoid damage to the finish on the I.D. of the Housing into which the bushing is installed, or the finish of the bushing. Forced installation of Sub-Zero installations, such as the use of a press or hammer is not permitted, and is not acceptable. A small non-metallic Hammer may be used to tap the bushing into alignment with the housing bore, or to seat the bushing.

B. Prior to Bushing installation, the parts and housing bore shall be cleaned with a cleaning solvent to remove all contamination.

C. Liquid Nitrogen shall be used for all Sub-Zero installations unless some other Sub-Zero coolant is specified and approved by OO-ALC/LGHLEN Engeering. The soak time of the bushing in the Liquid Nitrogen shall be Sufficient to allow the bushing to reach the same temperature as the coolant.

D. The Bushing shall be installed into the housing immediately upon removal from the coolant with an absolute minimum of lost time. Trail runs shall be accomplished as necessary to minimize installation time which should be in order of about seven (7) seconds maximum.

E. It may occasionally be necessary to heat the housing into which the bushing is to be installed, in addition to sub-zero cooling of the bushing. Detail parts in process will not have Paint, Sealant or other Organic Material Applied prior to Heating. The parts shall be heated by the use of Radiant Heat Techniques, such as Thermal Blankets, Infrared Lamps ETC.; To the maximum temperature of 250F. Temperature measuring devices shall be used to monitor heat and shall be located on areas of the part expected to reach maximum temperature. No scaling, oxidation or corrosion shall be permitted.

F. Bushings without Flanges shall be installed into Housing Bore which has received a light coat of Sealant per MIL-PRF-81733. Install shrunken bushing and wipe off any excess sealant that may have extruded around the periphery of Both Ends of the Bushing.

G. Bushings with Flanges shall be installed in a similar Manner as paragrahp (F) except Sealant shall also be applied to Face of Lug under Flange. Sealant shall be applied in such a manner as to ensure complete coverage of inside faace of bushing flange when bushing is installed. Wipe off any excess sealant around periphery of bushing flange. Wipe off any excess sealant from other end of bushing also.

H. For Bushings with external Grease Grooves, the inside of the Lug will be coated with MIL-C-16173 prior to bushing installation and face of Lug will be coated with MIL=PRF-81733 per paragraph G, if bushing is flanged.

PREPARED BY	SYMBOL	DATE
SANDI L. FIELD	LGMPM	20030210

REV:	ENGINEERING DATA REQUIREMENTS CONTINUATION SHEET *(ATTACHMENT "A")*
PART NUMBER: 3-41606-3	NATIONAL STOCK NUMBER: 1620-00-949-0417 LE

23. For Parts Heat-Treated to 180 KSI and above, any Surface Ground/Machined after Heat Treat shall be inspected for abusive grinding/machining Burns per MIL-STD-867. Grinding shall be per MIL-STD-866.

24. The Forging Shall be procured from the Original Forging Source, using the Original Certified Forging Procedures and Dies/Tooling.

A. Prior to Contract Award, The Detailed Part Bidder shall provide Certification from the Forging Source, to the Government that the Certified Dies and Procedures are available and the Forging Source has an agreement with the Detail Parts Bidder to provideForgings for their use in the event they are the successful Bidder.

B. Prior to Production, Forging Lot Qualification shall be accomplished as specified on the Forging Drawing and SAE AMS-F-7190 for Steel Forgings and Sae AMS-A-22771 for Aluminum Forgings. The Detailed Part Contractor Shall assure that theis has been accomplished by the forging source and shall submit certified documentation of accomplishment to the Government.

25. Forging Source, Control and Location of Dies:

Forging Drawings: 3-41606-1F ABD 3-41605-11F.

Die# : Unknown and 7874

Control Of Forging Process: Northrop

Location of Forging Dies:

KROPP FORGE COMPANY
5301 W. Roosebelt Road
CICERO, IL 60650-1273
PHONE: (708) 652-6691
CAGE: OBFN1

26. PRIOR TO CONTRACT AWARD, THE CONTRACTOR SHALL ADVISE THE GOVERNMENT IN WRITING OF THE INTENT TO PROCURE NEW FORGING DIES AND THE PROPOSED FORGING SOURCE: THE CONTRACTOR SHALL NOT PROCEED TO OBTAIN NEW FORGING DIES WITHOUT THE EXPRESS WRITTEN CONSENT OF THE GOVERNMENT PROCURING ACTIVITY. THE GOVERNMENT SHALL HAVE UNLIMITED USE OF THE DIES DEVELOPED UNDER THIS CONTRACT. THE CONTRACTOR SHALL INFORM THE FORGING HOUSE IN WRITING, AT THE SAME TIME THE ORDER FOR THE DIES IS PLACED, THAT THE GOVERNMENT HAS UNLIMITED USE RIGHTS OF THE DIES AND FORWARD A COPY OF THIS LETTER TO THE GOVERNMENT CONTRACTING OFFICER.

PREPARED BY	SYMBOL	DATE
SANDI L. FIELD	LGMPM	20030210

SOURCE QUALIFICATION REQUIREMENTS
(PL98-525, SECTION 2319)

STOCK NR (NSN)1620-00-949-0417LE PART NUMBER (P/N)3-41606-3
NOUN: Piston, NLG AIRCRAFT:T-38

SECTION C

QUALIFICATION REQUIREMENTS THAT MUST BE SATISFIED TO BECOME A QUALIFIED SOURCE:

1. Because of the need for uninterrupted item support to military aircraft systems while keeping with the requirements of PL 98-525, the current acquisition need not and generally will not be delayed to provide an offeror an opportunity to qualify. Normal acquisition practices at OO-ALC should preclude the denial of opportunity to any interested offeror.

2. The offeror must provide a pre-contract award qualification article, which meets the requirements of the engineering drawings, material specifications, and process specifications. However, successful completion of the qualification testing does not guarantee any contract award. If the offeror is deemed qualified and awarded the contract, a post-contract award first ariticle exhibit may be required to verify production capability.

3. The qualification article will be subjected to form, fit, and function verification as well as required testing to assure compliance with data list and other applicable procurement criteria. The qualification article shall demonstrate full compatibility and comparability with existing parts.

4. The required materials will be procured from a qualified source and shall meet the requirements of their respective specifications. The offeror will assure that the supplier has accomplished this and shall submit certified documentation of accomplishment of the above requirements to the purchaser along with the pre-contract award qualification article.

5. The required forgings shall be procured from the qualified forging source using the original certified forging procedures and dies. Forging material and lot qualifications shall be accomplished as required in the specified forging drawing, P/N 3-41606-3 and specification MIL-F-7190. The offeror shall assure that this is or has been accomplished by the forging source and will submit certified documentation of accomplishment of the above requirements to the government along with the pre-contract award qualification article.

6. The qualification article once submitted will become subject to such testing as deemed necessary by the U.S. Government to prove that the article meets all dimensional, processing and functional requirements. Such testing may result in the destruction of the article. Following completion of necessary testing and evaluation, the article no matter what its condition shall be returned to the contractor or disposed of at his discretion and direction whether it was found acceptable or not.

7. Form verification: The U.S. Government's Quality Verification Center (QVC) will be used to insure compliance with the dimensional requirements of the article. Material and processing compliance will also be verified as required.

8. Fit/function verification: Existing components and government test stands and fixtures will be utilized to verify physical interface and functional performance of articles.

9. Testing for material and process compliance.

(a) Material analysis
(b) Heat treat
(c) Grinding
(d) Plating
(e) Finish
(f) Grain flow
(g) Other

SOURCE QUALIFICATION REQUIREMENTS
(PL98-525, SECTION 2319)

STOCK NR (NSN)1620-00-949-0417LE PART NUMBER (P/N)3-41606-3
NOUN: Piston, NLG AIRCRAFT:T-38

10. Remarks:

a. Organic verification capabilities exist at OO-ALC.

b. Testing requirements outside organic capabilities will be contracted out.

11. The estimated cost of government testing and evaluation is $1500.

12. Maximum time for testing of the qualification article will not exceed 30 days from receipt at testing agency.

SECTION D

QUALIFICATION WAIVER REQUIREMENTS.

1. An offerer who has had previous experience in the manufacture and qualification of items, which can be correlated with this product, may apply to the design control authority at OO-ALC for a waiver of the above stated qualification requirements.

a. The qualification waiver criteria utilized by the design control authority to perform a qualification analysis are available upon request. The qualification waiver criteria may be used as a guide in preparing the offerer's written input to the design control authority.

b. The burden of proof for written inputs is on the offerer. The design control authority will not pursue authenticity verification of claims made by the offerer of product manufacturing experience with other Government or non-Government agencies. Unsubstantiated claims will not be considered in the waiver analysis process.

c. This waiver will be granted if and only if the design control authority LGHLEN can establish the qualifications of the offerer through the evaluation of written inputs from the offerer or from previous knowledge of the offerer's capabilities or from previous experience with the offerer on similar item acquisitions. If there is any doubt about the offerer's capability, the offerer will be required to submit a pre-qualification article. There is no guarantee of qualification by similarity. LGHLEN reserves the right to require a pre-qualification article of all offerers.

2. The current acquisition need not and will not be delayed in order to provide an offerer with an opportunity to meet the requirements for qualification waiver.

3. Maximum time for approval of qualification by similarity will not exceed 15 days.

PACKAGING REQUIREMENTS

PR, MIPR, OR DOCUMENT NUMBER: FD2020-03-23066

1. PACKAGING REQUIREMENTS: Block 1 shall always be completed and further defined in Blocks 2, 3, or 4. The term "Item ID" refers to line item number, item name, NSN/MMAC, part number, or any other way of identifying a particular item. MIL-STD-2073-1 represents Military Preservation (PRES) and Packing (PACK). Military packing consists of levels A, B, and Minimum (M). ASTM D3951 could be substituted by another document if specified in Block 2. Quantity Per Unit Pack (QUP) and Commercial Best Practice (CBP) are abbreviated. The reverse side of this form has the European Union environmental requirements.

ITEM ID	QUP (#)	MIL-STD-2073-1 PRES (X)	MIL-STD-2073-1 PACK (A/B/M)	COMMERCIAL ASTM D3951 PRES (X)	COMMERCIAL ASTM D3951 PACK (X)	CBP (X)	SPECIAL PACKAGING INSTRUCTION NUMBER
16200026407450026	001	X	B				
16200099404170027	001	X	B				F0125240420 1320
16200026407500028							F00011019291035

2. ADDITIONAL PACKAGING AND CONTAINER MARKING REQUIREMENTS *(Specify all revisions and dates of required specifications, standards, and data item descriptions (DIDs))*

3. INSTRUCTIONS TO CONTRACTING OFFICER: Insert appropriate clause(s) into Section D for applicable item(s) as indicated below.

- X AFMCFARS 5352.247-9005, SHIPPING CONTAINER MARKING. ITEM NAME(s)OR NSN/MMAC ____
- AFMCFARS 5352.247-9006, MARKING OF WARRANTED ITEMS. ITEM NAME(s) OR NSN/MMAC ____
- AFMCFARS 5352.247-9007, SPECIFICATION COMMERCIAL PACKAGING (ASTM D3951). ITEM NAME(s) OR NSN/MMAC ____
- AFMCFARS 5352.247-9008, CONTRACTOR COMMERCIAL PACKAGING *(Commercial Best Practice)*. ITEM NAME(s) OR NSN/MMAC
- X AFMCFARS 5352.247-9009, MILITARY PACKAGING AND MARKING. ITEM NAME(s) OR NSN/MMAC ____
- AFMCFARS 5352.247-9010, ENGINEERED OR SPECIALIZED CONTAINERS (CDRS). ITEM NAME(s) OR NSN/MMAC ____
- AFMCFARS 5352.247-9011, PACKAGING AND MARKING OF HAZARDOUS MATERIAL. ITEM NAME(s) OR NSN/MMAC ____
- AFMCFARS 5352.247-9013, PACKAGING DATA *(Coded and/or Special Packaging Instructions)*. ITEM NAME(s) OR NSN/MMAC ____

4. CODED DATA: Coded requirements shall be interpreted in accordance with MIL-STD-2073-1.

[redacted]

ITEM	QUP	ICQ	PRES METH	CD	PRES MTL	WRAP MTL	CUSH DUNN	CT	UNIT CONT	INT CON	UCL	SPEC MKG	UNIT PACK WEIGHT	LENGTH	WIDTH	DEPTH	WHOLE CUBE	1000TH	OPI
16200026407450026	001	000	20	1	99	G8	BG	X	E0	00	B	00	0810 7	030 5	012 3	006 5	0001	434	0

ORGANIZATION: LGMPD

PACKAGING SPECIALIST *(Typed Name/Signature)*: Mike Stephens

DATE: 2003/7/8

AFMC FORM 158, 20030408 *(EF-V1)* PREVIOUS EDITION IS OBSOLETE

SEE REVERSE SIDE

SPECIAL PACKAGING INSTRUCTION

CODE ID	SPI NO. (TPO)
98747	F01-252-4042
	SHEET 1 OF 2

PART OR DRAWING NO.	NATIONAL STOCK NO.	CURRENT REV
2007602-103	1620-01-252-4042	B

ITEM NOMENCLATURE
PISTON ASSEMBLY

ORIGINAL DATE 89167

ILL. T. LUCERO
CHK. T. ZIMMERMAN
ENGR. K.W. OLSON
AUTH. A. BRIMHALL

MILITARY PRESERVATION IAW MIL-STD-2073

SERVICEABLE METHOD 20
UNSERVICEABLE METHOD 20

QUP 001

ICQ 000

CLEANING & DRYING IAW MIL-STD-2073

PRESERVATIVE MIL-PRF-16173, GR 2, CODE 02

MARKING IAW MIL-STD-129

SPECIAL MARKINGS:
A) SPI NO. F01-252-4042

MARK THE SPI NUMBER ON ONE SIDE OF THE CONTAINER AND ON ALL REMOVABLE DUNNAGE.
MARK REUSABLE CONTAINER DO NOT DESTROY

CLOSURE IAW PPP-B-621

CAUTION NOTICE

1. THIS PISTON HAS A HISTORY OF CORROSION. INSURE THE PRESERVATIVE IS APPLIED AS INSTRUCTED IN NOTE 1.

NOTES:

1. APPLY MIL-PRF-16173, GRADE 2 PRESERVATIVE ON ALL BARE METAL SURFACES, INCLUDING INSIDE HOLLOW TUBE OF THE PISTON ASSEMBLY. INSURE ALL SURFACES ARE COMPLETELY COVERED. WRAP PRESERVED EXPOSED SURFACES WITH -5 AND SECURE IN PLACE WITH A-A-883 TAPE OR EQUAL.

PACKING AS SPECIFIED BELOW AND ~~BILL~~ OF MATERIALS

LEVEL	SPEC	STYLE	TYPE	CL	VRTY	GR
A	PPP-B-621 (MOD)	4		2		A
B	PPP-B-621 (MOD)	4		1		B

	LEVEL A	LEVEL B
GROSS CU FT	2.474	2.474
GROSS WT LBS	54	54
DESIGN FRAGILITY G	100	100

	LENGTH	WIDTH	DEPTH
CNTR I.D.	35	11	8
CNTR O.D.	38	12 1/2	9
ITEM DIM	32	9	5 1/2
ITEM WT LBS	31		

REVISIONS		
LTR	DESCRIPTION	DATE
A	ADD NOTES & UPDATE	99129
B	UPDATE/ADD WOOD STATEMENT	01320

2. SOURCE OF SUPPLY FOR TORQUE WASHERS, CATALOG NO. MS-98398K2915:
TRW FASTENER DIV.
31 AMES ST.
CAMBRIDGE, MASS. 02142, OR LOCAL PURCHASE

3. PISTONS PACKED IN PREVIOUS ADDITIONS OF THIS SPI DO NOT REQUIRE REPACKING IF THE INTEGRITY OF THE SPI IS NOT COMPROMISED.

NOTICE 1: TRAFFIC MANAGEMENT OFFICES OR ANY ACTIVITY BUYING SOLID WOOD MATERIAL TO USE FOR BUILDING OR ASSEMBLING PACKAGING MUST COMPLY WITH THE FOLLOWING REQUIREMENT FOR PURCHASING THE WOOD: "ALL WOODEN PALLETS AND WOOD CONTAINERS PRODUCED OF NON-MANUFACTURED WOOD SHALL BE CONSTRUCTED FROM HEAT TREATED (HT TO 56 DEGREES CENTIGRADE FOR 30 MINUTES) MATERIAL AND CERTIFIED BY AN ACCREDITED AGENCY RECOGNIZED BY THE AMERICAN LUMBER STANDARDS COMMITTEE (ALSC) IN ACCORDANCE WITH NON-MANUFACTURED WOOD PACKING POLICY AND NON-MANUFACTURED WOOD PACKING ENFORCEMENT REGULATIONS BOTH DATED MAY 30, 2001." THESE DOCUMENTS CAN BE FOUND AT WWW.APHIS.USDA.GOV.

P/N	QTY REQD	NOMENCLATURE OR DESCRIPTION	SIZE (INCHES UNLESS SPECIFIED)	MATERIAL SPECIFICATION
-12	A/R	TAPE	1 X A/R	A-A-883 TYPE I OR II
-11	6	NUTS	3/8	FF-N-836 TYPE II, STYLE 4
-10	6	WASHERS	3/8	FF-W-92 TYPE A, GRADE I, CLASS A
-9	6	TORQUE WASHERS	to fit 3/8 BOLT	5310-00-936-9532 (SEE NOTE 2)
-8	6	BOLTS	3/8 X 5	FF-B-584 TYPE I, CLASS 1, STYLE A
-7	3	STRAPPING	A/R X 1 1/4 X .035	ASTM-D3953 TYPE I, REG DUTY, FIN B
-6	3	CUSHIONING	A/R X 3 X 1/4	PPP-PRF-115 TYPE I (CARGO PACK)
-5	1	WRAP	20 X 12	MIL-PRF-121 TYPE I, GRADE A, CLASS 1
-4	1	WRAP	8 X 8	MIL-PRF-121 TYPE I, GRADE A, CLASS 1
-3	2	SADDLES	2 X 4 (NOM) X 8	ASTM-D6199 CLASS 2
-2	1	SADDLE	2 X 4 (NOM) X 7	ASTM-D6199 CLASS 2
-1	2	TOP & BOTTOM	36 1/2 X 12 1/2 X 1/2	A-A-55057 TYPE A

SPI NO. F01-252-4042

SPECIAL PACKAGING INSTRUCTION

CODE ID	SPI NO. (TPO)
98747	F01-252-4042

ITEM NOMENCLATURE
PISTON ASSEMBLY

SHEET 2 OF 2

NSN'S THAT APPLY

1620-01-252-4042
1620-01-061-3239
1620-01-071-0538
1620-01-445-6131